NATURE MAGAZINE

SEPTEMBER 1932 35¢ VOL. 20, NO. 3

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THERE is a long list of "niceties" we want our children to learn. But how go bout it? The nursery school is pioneering a iew way. But these same methods may be ised in the home. Read in the September HYGEIA the personal experience of a nother with the nursery school, as told by Elizabeth S. Ferguson—how she developed n understanding attitude toward Junior's aloshes on the wrong feet, how they reached n agreement concerning his "dawdling" over ieals and even his marking on the wall paper. The reason your youngster "doesn't act that vay at home" may be revealed to you in his article. It will prove a godsend to many uzzled parents.

Also in the SEPTEMBER Issue

Other worthwhile articles dealing with the parent nd child include **"Guarding against Tuberculosis", Give Your Child an Attractive Speaking Voice",** nd **"The Value of Early Periodic Health Examina- ons of the Child".**

But the September HYGEIA is of general in- erest to all. There is an article on **"The Micro- cope",** one of a series on **"How Science Solves Crime". "Lincoln and the Doctors"** is a serial howing how the health of the Great Emancipator nfluenced his life and character. **"Fruits"** is part f a series on **"Foods—Their Selection and Prep- ration",** which will appeal to the housewife. In act, there is something vitally worthwhile for very member of the family, for every individual, the September HYGEIA.

Each month HYGEIA will bring into your home ***uthentic*** **information on health problems. It is ublished by the American Medical Association. s articles are written by experts in their various elds. But the language is simple and non-technical.**

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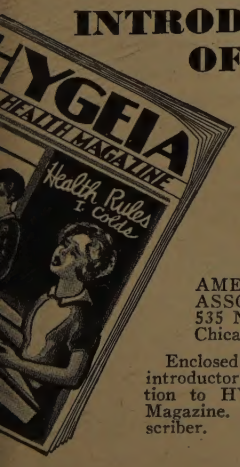

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Photographic DEPARTMENT

A Good Picture

The above photograph of a duck's nest located quite far from water is not only an interesting picture on account of the site selected by the duck family but as a fine instance of close-up photography. It was taken by L. DeWitt Efner of Schenectady, New York. Note the excellent detail in the immediate nest and surroundings, including the down lining provided by the parents.

Interesting Camera

One of the most interesting cameras we have recently seen goes by the trade name of Pal-Ko. But it is the various features that are found in this product that make it worth looking into, and the outstanding one is the incorporation of a ground glass focusing screen in a roll film folding camera. The result is an efficient and economical camera that does away with the waste of double exposures and allows the photographer to make two or three pictures in the space of one of the size for which the machine is designed if desired.

The Pal-Ko is made at present only in the 3 A size and here is how it works. The ground glass focusing screen is at the back of the camera and is exposed by opening a door. The changing of the film for each exposure is effected by pulling out a sliding rod which must be pushed back before the ground glass screen may be used again. When the rod is pushed in, the loaded and empty film spools lie side by side at one end of the camera body, permitting direct focusing of a full-size image on the ground glass screen. When the ground glass door is closed and the shifting rod is pulled out, the film is brought into position for the exposure and then, when the rod is pushed back again after the exposure, the film is automatically wound on

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If the latter course is the one of your choosing, you probably *never will write.* Lawyers must be law clerks. Doctors must be internes. Engineers must be draftsmen. We all know that, in our times, the egg does come before the chicken.

It is seldom that anyone becomes a writer until he (or she) has been writing for some time. That is why so many authors and writers spring up out of the newspaper business. The day-to-day necessity of writing—of gathering material about which to write—develops their talent, their insight, their background and their confidence as nothing else could.

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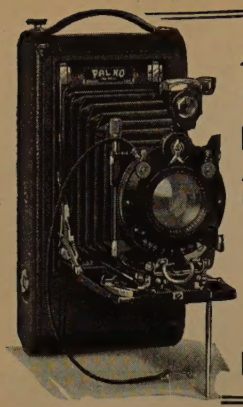

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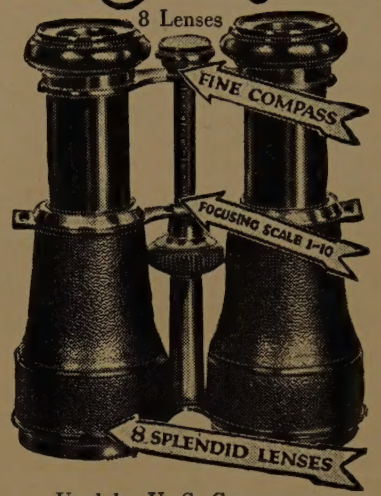

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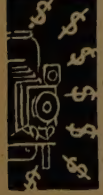

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The Photographic Department seeks to be of real service to its readers. It can accomplish this best if those who use the department let us know what they would like to have covered in it.

Write to the
PHOTOGRAPHIC EDITORS
Nature Magazine
Washington, D. C.

the spool and the spool is returned to its original position. Then, and not until then, the ground glass door can be opened and another picture focused on the screen. It looks to us as though it were just about foolproof.

They have another gadget on this camera. It is a knurled disc that can be turned so that the entire post card size can be taken or pictures one-third or two-thirds of the full size. Thus one can get from seven to nineteen exposures on a standard six-exposure roll. The camera comes equipped with choices of lenses and shutters.

This department will be glad to provide readers with other information relative to this camera. It certainly has intrigued us and perhaps it will you, too.

Another Aid to Indoor Photography

In addition to the now popular Photoflash Lamp which gives an especially actinic, instantaneous flash of light, amateurs are finding a 40 cent, 64-volt, 100-watt lamp a valuable light. Ciné camera owners have been using it with great success for several months for their indoor movies.

The 64-volt lamp resembles an ordinary 100-watt bulb and when used on regular 110-volt house current gives a light equal to seven or eight 100-watt lamps due to the "overloading" of its filaments. This naturally shortens its life, though as an average the lamps burn as long as 45 minutes. That, of course, is sufficient for making many pictures.

Exposures with box cameras and other single lens cameras range from 3 to 10 seconds and with fast lenses (*f*.4.5) snapshots may be made with one lamp and a reflector.

Of Varied Interest

There will be no increase in the cost of Eastman cameras either to the public or dealers, the company having announced that it will absorb the tax levied under the recent tax bill.

The Rossiter Snyder Publishing Company, 30 West 18th Street, New York City, through this department offers to send readers copies of a booklet on the hundred best markets for photographs.

It may be signs of the times but the announcement of Agfa Ansco of Binghamton that the price of their motion picture camera, Ansco Risdon, has been cut to twenty dollars is a break for amateurs.

More and more good Nature "shorts" are being shown in the movie theaters. One of the best we have seen recently is a film of life, both wild and human, on the Faroe Islands. We could stand more such.

A new model Leica with built-in range finder and automatic focusing lens has been introduced by E. Leitz, Inc., New York City. It is known as Model D.

Are you on the mailing list to receive Rexo, a monthly journal devoted to photography and published by Burke and James, 223 West Madison Street, Chicago, Illinois? Get on.

Small Cameras

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nd alert! Not full of nerves and quarrelsome as
y Ruth and Kane were getting to be.
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l their extra knowledge and health?" I thought.
hen I felt sorry for my own children. We had
oved to so many towns, had changed schools
often that they were finding their lessons hard.
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n!" Then I learned that they would be ready
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e same ages, would have to study a year or so
nger. "Please let them study at home with
alvert," John pleaded, and Phoebe echoed him.
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For him there is nothing better than the various small cameras of vest-pocket size, which use for a negative film either standard 35 mm. motion picture film or the smallest size of roll film. If the camera has a really good lens, the resultant pictures are capable of very considerable enlargement, and it is really no more difficult to make prints with a small, specially designed enlarging machine, such as the makers of the small cameras supply, than it is to make contact prints which produce pictures only just the size of the negative. There are other advantages of the very small cameras. Many of them come equipped with very fast lenses—that is, lenses capable of taking pictures under exceptionally poor light conditions. Then, again, the little cameras which use standard motion picture film place at the disposal of the amateur all the advantages of the supersensitive and panchromatic negative film manufactured for the special requirements of the motion picture industry. The term panchromatic film means film sensitive to all the colors. Ordinary roll film and film packs are not very sensitive to red light. Therefore, they do not quite clearly record in the corresponding shades of gray the true relative values of the colors. The only trouble about panchromatic film is that it has to be developed in absolute darkness, but even amateurs can readily learn to do this in developing tanks, and most professional Kodak finishers now understand about panchromatic film, too.

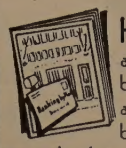
At least one of the very small compact cameras using motion picture film can now be readily equipped with a telephoto lens. The effect obtained by using a telephoto lens is similar to the effect of using field glasses. It brings the object much nearer. The telephoto lens is, therefore, desirable when taking pictures of wild birds and animals.

The Photographic Editor of NATURE MAGAZINE will be glad to advise readers as to the selection of camera equipment for specific purposes.

There are many new cameras on the market, many of them made in Germany. Some of them sell for remarkably low prices and are effective instruments in the hands of someone who understands how to use them. This flood of foreign cameras includes a great many apparently very compact outfits which use not roll film but film packs. A roll film is simply a spool of negative which is wound past a lens without being touched by the hand. Most of the Kodaks and simpler cameras manufactured in this country are of the roll film type. A film pack is simply a pile of separately cut sheets of film ingeniously arranged in a holder so that, by pulling out a tab, first one and then another may be placed in position behind the lens. The ingenious arrangement above referred to works very well as long as the camera is carefully handled, but a word of caution to the camper is needed. Many a man has come back from a rough trip with a collection of what he presumes will turn out to be exceptional pictures, only to find, upon having them developed, that many of them have been spoiled or fogged by light creeping in. That is the weakness of the film pack idea, and the reason why many who go camping or camera hunting prefer to use the roll film instead. Most cameras made for film packs cannot be changed over to the use of roll film. A whole new camera must be bought.

(Continued next month)

A little message about a book about a bank
and the coupon that brings it to you



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THE LAWS OF NATURE

• • •

DO THEY OFFER THE NEEDED CUE TO SOLVING OUR ECONOMIC CRISIS?

IN ALL man's dealings with Nature tacit recognition is made of certain broad principles. The wise farmer learns that if he repeatedly overtaxes the soil without replacing the chemical and bacteriological content, that soil will become unproductive and the farmer's future capital will be destroyed. The conservationist learns that continuous destruction of birds and animals at a rate beyond their natural increase will exhaust the supply and eventually bring about practical extermination of the species. He finds out that unscientific cutting of a forest will eventually destroy the business of the lumberman who thus directs his operations. These simple facts are known, but, alas, we, the American people as a whole, have all too often, through ignorance, carelessness or some foolish hope of being able to "get away with it", neglected to follow the simplest and clearest of natural laws.

What is the fundamental cause of the depression which affects us all? Let us apply our own reasoning in accordance with the laws of Nature and see where it leads. As professed believers in conservation, we can quite naturally start with the ignorant farmer, the thoughtless game-hog, and the opportunist lumberman, all of whom took and spent without thought for the future. They spent not only the income rightly earned by their labor, but also that capital which is the heritage of future generations. Although we criticize their actions, we can not by any stretch of the imagination lay at their door the chief blame for our vanished prosperity. But how about that attitude of mind which adopts such careless, short-sighted and destructive methods? What about the attitude of mind of the American people which has supinely allowed such methods to be followed? When our politicians have spent public money more rapidly than it came in in the form of legitimate taxes, and when they borrowed money to waste on graft or unnecessary public works, they were doing just what the game-hog and the opportunist type of lumberman do. They were stealing away capital from the future. When industry was borrowing money to build factories and machinery on a competitive basis, which resulted in more production than the world was ready to absorb, they were spending the hoped-for earnings of the future without result. And the American people were complacent. Under a democratic form of government the leaders can not be expected to be more intelligent and foresighted than the masses who elect those leaders to office. Concern for the laws of Nature and the laws of economics, which are so closely allied, can not be left to someone else. It must be felt and practised by each and every individual citizen.

Need we look further to see that what has brought our nation into this great depression has been over-expansion, over-spending, exhaustion of future capital, brought about by the same careless and reckless attitude of mind that has permitted destruction of forests and wild life? Is not the deadly parallel all too clear? What, then, are we to do? We have on our hands a sick nation, physically and nervously exhausted. About us clamor the politicians, the quack doctors of economics, each with a supposedly marvelous elixir at hand which he asks permission to administer. Each of those elixirs appears to be compounded of the same fundamental drug—namely, the idea of borrowing vast sums of money and using it in some wholesale non-productive way. But, if wasting borrowed money, if devouring the earnings of the future brought the patient low, will the same sort of thing cure him? Nature has always been the great physician who advises a minimum of drugs, rest, and a careful, moderate, nourishing diet. A moderate diet of productively spent funds may well be prescribed for an economically sick nation, but not a heavy diet of unproductive waste. Sometimes a sick patient needs a major operation, and even a sick nation may have removed from its constitution anti-trust regulations which have encouraged excessive competition, or other obstacles to progress.

We readers of Nature Magazine are proud possessors of a conservation viewpoint which enables us to understand. In common with all other citizens, we are soon to be given an opportunity to choose an almost complete new set of leaders to consider the ills of our country. There are four hard things that we as conservationists need to do —first, to understand surely; second, to believe securely; third, to practise it sincerely; and, last, to talk and preach it clearly. Every one of us must consider that it is not enough to know what is wrong. We must exchange views with others, and express our fundamental belief that Nature's laws embody the true principles of conservation, which alone can save not only the birds, the creatures of the wild, and the products of the earth, but also our very nation from the consequences of uneconomic, destructive folly. To this platform we will attempt to pledge those we help to elect to public office.

REPRODUCED FROM AN ORIGINAL
ETCHING BY DIANA THORNE

COURTESY OF THE GAGE GALLERY
OF CLEVELAND, OHIO

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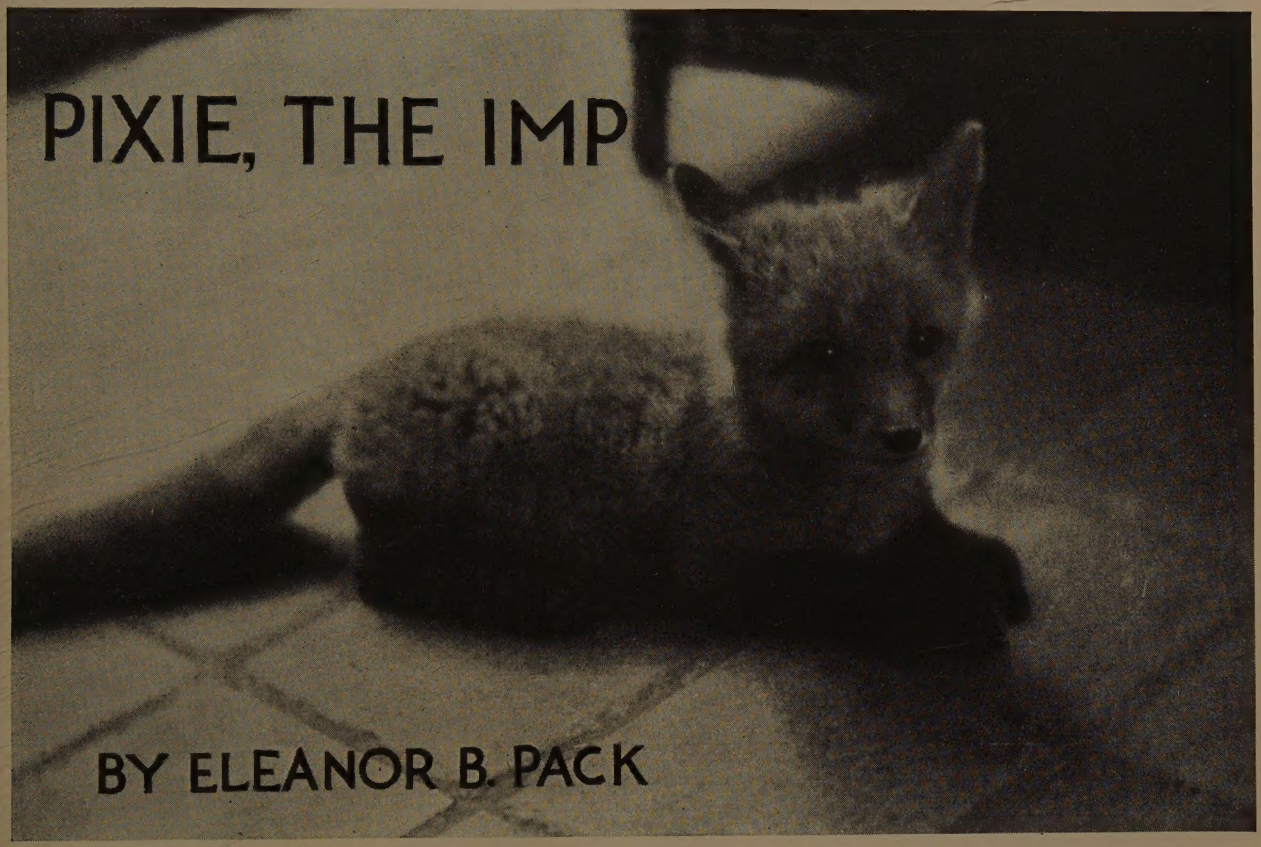
PIXIE, THE IMP



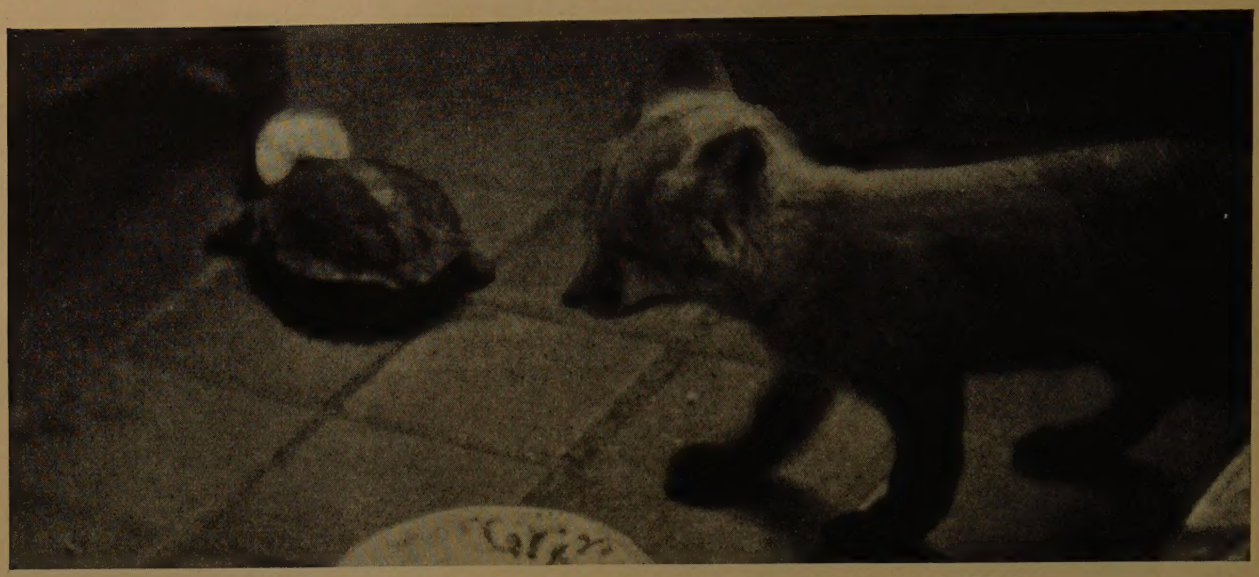
BY ELEANOR B. PACK

FRAMED in the glass doorway, against a background of ferns and flowers, was a reddish-brown furry face with huge pointed ears and bright, twinkling brown eyes. At either side of the sharp nose long whiskers twitched impishly. Bill, our newly-arrived guest, stood in the hall staring at the face.

"Well," he said, "I have learned to expect almost anything in this house, but this is the limit." Whereupon Pixie, impatient of our delay, began to bang on the door with both black forepaws, punctuating his beating with sharp barks. Not wishing to buy a new glass for the door, we hastened out to the porch. The fox, in a paroxysm of joy, whisked around the room, untying shoe laces as he ran, and finally ending up in my lap. Panting with excitement, he looked up into my face, his little rose-petal tongue edged by tiny white teeth. Then he leaped on my shoulder and began to pull gently at my hair, tweaked my ear, and bounded lightly away, bent on further mischief.

"I don't believe it," said Bill, reminded of the farmer's saying when he first looked at a giraffe in a circus.

During all this procedure, Pixie had been sizing up our new guest. Not to miss any movement Bill made, the fox cleverly kept in a position so that he could watch him out of the corner of his eye. Finally he advanced cautiously to smell at Bill's shoe. He sniffed quickly at the hand extended down to him; then off on other business. "Cautious", the tortoise, had begun to shuffle out of a corner and advance towards a piece of stale bread. Just as he achieved his goal, Pixie was upon him. A black paw sent the crust spinning across the floor. With a hiss of annoyance, Cautious circled around and waddled toward it. Pixie seemed intent on eating a few fronds from my choice maidenhair fern in a window box. Crunch! The tortoise settled down to enjoy his lunch. Suddenly Pixie landed squarely on the middle of his back with all four feet, jarring the crust loose and again flicking it out of the way. We sat in our chairs, rocking with laughter, while Pixie, aware that he was the cause of our mirth, continued to tease Cautious, jumping into the air in a beautiful curving arc, his long tail gracefully flowing behind and emphasizing the curves



"CAUTIOUS", THE TORTOISE, SHUFFLED OUT OF A CORNER TOWARD A PIECE OF STALE BREAD

Pixie was quickly upon him, reaching out a black paw and sending the crust spinning across the floor. With a hiss, Cautious circled around

of movement. He seemed like an apparition, for he made not a sound.

One day in late spring the expressman had delivered a small crate at the back door. Two large brown eyes gazed at me from the darkest corner of its interior. I opened the crate carefully. Surely its inmate must have had a strange and noisy journey. In the far corner I found Pixie, a small ball of soft gray, with two huge ears belying the first impression that it was but a kitten. I coaxed him out on the kitchen floor and made my first acquaintance with a baby red fox. Not frightened by his adventures, as I had expected such a nervous animal to be, he clambered out of his box and began to stretch. His tail was many sizes too large for him, giving the appearance of having been pinned to the wrong body. Suddenly he collided with a pan of milk. Forgetting any trace of timidity, he stuck out his tiny pink tongue and lapped it greedily. Just then Sunny, our ten-months-old Collie, came into the room. The new baby turned quickly and snarled with such spirit that the huge collie retired in injured dignity. He decided it best to watch proceedings from a safe distance.

As the days passed, Pixie became a real member of the household. Each morning I carried him to the lawn where a wire cable ran between two trees. Attached to a chain, which slid on the cable, he soon learned just how far he could run without being jerked back, and how to unwind himself from the trees at either end. Sunny was ready for a frolic from the first day, considering Pixie the answer to a prayer for a playmate; but Pixie was slow in making friends. He lay on the grass with his head flat on the ground and his huge ears alert, his tail moving slightly from side to side. Suddenly, as if shot up from a hidden spring, he was in the air, bouncing away lightly like a piece of thistledown. With a bark of joy, Sunny was after him. The race was on. Up and down the runway the fox dodged—so quickly that Sunny nearly tied himself in knots trying to catch him. All went well

JUST A BIT OF CATCH-AS-CATCH-CAN WRESTLING

Pixie and Vernon play, à la fox, with no holds barred but with no casualties

A PERFECT PET IS PIXIE ON HIS GOOD BEHAVIOUR

He is gentleness personified but there is always the promise of mischief to come

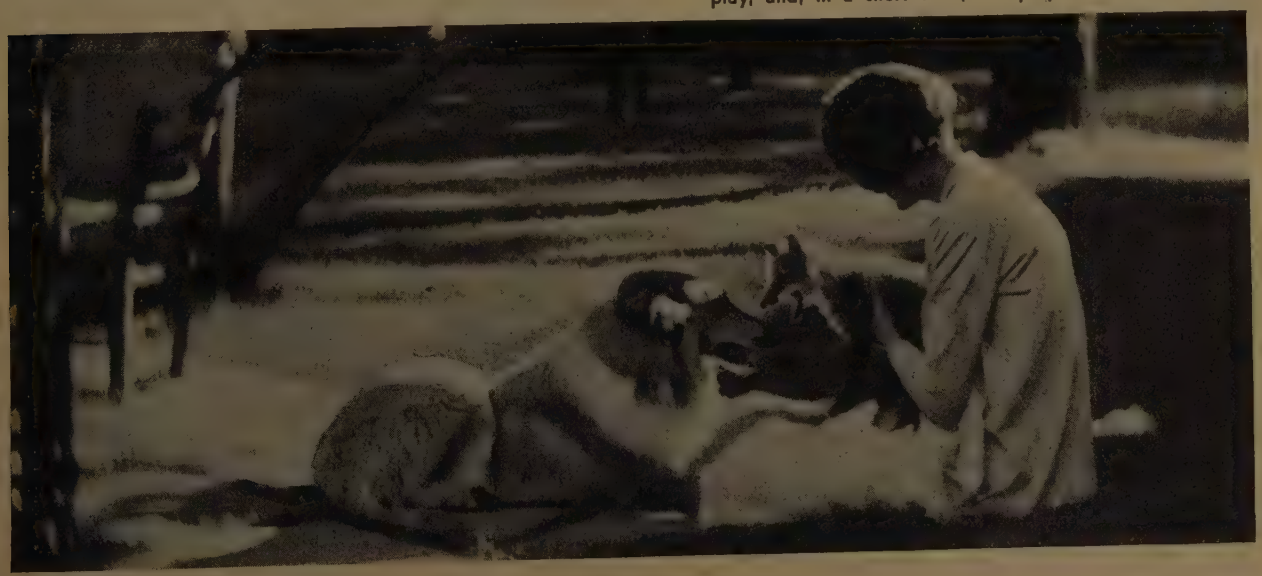
until Pixie came unexpectedly to the end of his tether; then, feeling himself cornered, he snarled and snapped. Gradually, however, as the newness wore off and he became accustomed to his new playground and its limitations, he ceased to feel himself at bay, and from that time on he never offered even to snarl at Sunny. As for human beings, never at any time did he show anything but perfect trust in them. The children loved to play with him, rolling on the grass while he bounded around and over them in a rough and tumble fight.

Pixie must have been a month old when he arrived. His coat was a soft gray and his feet a dark gray; but during his first month with us a soft red mist gradually appeared, long, silky hairs which covered the gray down. His feet and legs became jet black, as did the tips of his ears and the edging of his snow-white throat. His tail was a graceful plume which trailed his movements in curving arcs. Long black whiskers framed his impish face and twitched tantalizingly with every change of expression.

Each morning now, as soon as Pixie heard my voice in the garden, he began to bark and clambered up the wire of his pen to the roof of his kennel. From this lookout he could see over the top of the hemlock hedge that bordered the garden. If I was too busy to come to him, the bark changed to a persistent howl; then to an angry and injured whine. When this happened, I left whatever I was doing and went to him. On my approach, his tail began to wag like a dog's, except that it tossed up and down as well as sideways, and his long ears flattened to his head, giving him a ferocious aspect. His mouth opened, showing his rose-petal tongue, and he panted with joy. When I entered his pen, he would rush at me, his ears flattened, and, panting and whining, he would crouch down and turn on his back with all four feet in the air, while I rubbed his neck and tummy. While on his back, he juggled my hand with his four feet, as if it were a ball that he was trying to balance in the air. Then, suddenly turning over, he would jump up into my lap and begin to chew my hands and arms.

"MEET SUNNY, PIXIE". "SUNNY, THIS IS PIXIE AND HE'S A FOX"

After this introduction many happy hours were spent by collie and fox at play, and, in a short time, the play was always tranquil

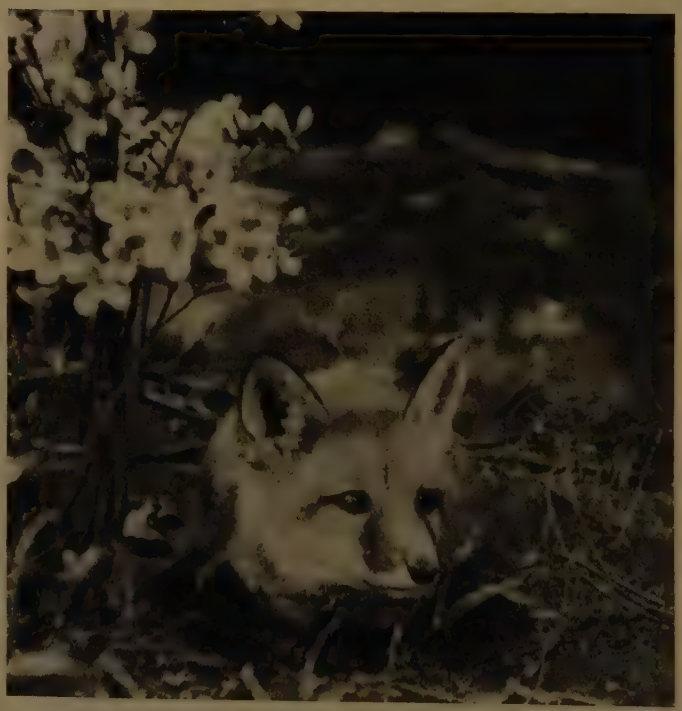


WHITHER THOU GO, I GO'EST, AND PIXIE STARTS UP A TREE

The fox answers the small boy urge to climb with sympathetic response and investigates the relative safety of tree limbs for boy and fox

Even a kitten, with much less strength and teeth far less sharp, leaves an imprint or the telltale scratches of sharp claws carelessly used after such a playtime, but not so with Pixie. Even in his roughest moments, when he hurled himself at me from a distance to catch my arm in his mouth, not even a slight mark appeared as a result.

When Pixie first came, I went into his play pen each morning, snapped a chain to his collar and carried him in my arms to the runway. As he became accustomed to this procedure, he soon showed a desire to struggle out of my arms and run by himself. One morning I talked it over with him, as one might talk to a child. I told him that I would let him run all the way by himself if he would behave and go where I wanted him to. Then I opened the door of the pen. Out shot Pixie with me in tow, on a dead run, dodging along the path between the roses, over a corner of the box-lined perennial bed and straight towards the runway. Panting and gasping with amusement and exertion, I sat on the grass and watched Pixie run up and down, around tree trunks and back again, dodging with such speed that he seemed like a ball of red fur blown by the wind. Soon Sunny discovered that Pixie was ready to receive callers, and the real rough-house was on. When the attack became too speedy and aggravating to cope with, the large, tawny collie would retire to a safe distance, just out of reach of the fox, and there watch Pixie with a look which seemed to say, "There, that's what you get for pulling my tail so flippantly!", while Pixie, very much annoyed, pretended that Sunny had ceased to exist and busied himself with digging up some of our carefully-tended grass. But no matter how busy he might be, not a sound or a motion in our whole garden escaped his bright brown eyes.



ON THE ALERT FOR A QUARRY

Crouched, bright eyes alertly watching, Pixie seems to be ready to spring

One day Pixie learned to undo the catch on his leash by pressing the lever with his paw. Before I knew what had happened, I saw the chain hanging limp. I was terrified. I knew that Pixie wouldn't go far, but we live half a block from a state highway, and even if the cars didn't frighten Pixie, I was afraid he might encounter a strange dog before I could catch him. I called and wandered around

the garden and then into my little wild garden. Soon I heard a rustle among the ferns, and out trotted Pixie. He jumped into my arms, and, tucking his head against my neck, whined and talked as if he just couldn't express all his pent-up joy at returning to safety. He had been just as frightened with his new adventure as I had been at the thought of losing him.

One day when Pixie had been with us for a month, we decided to tie him with only a fish line, in order to get some motion pictures of him without having the ugly chain prominent in the foreground. Pixie was beside himself with joy, because the line did not hamper his movements. Since he had learned how to unfasten the catch of his old leash, we had had to have a heavier one put on, the weight of which put a curb on his enthusiasm. He darted about the lawn with unbelievable grace and lightness. No false moves, no awkward positions, no missteps ever occurred.

HOW ABOUT LETTING ME OUT? There are greener fields and wider spaces outside and Pixie yearns to romp

After this fish-line scheme had worked so well, we decided to let him continue without his chain; but one day the line sagged and Pixie was nowhere to be seen. Not for long, however, for suddenly Sunny made a dash for the wild garden, and out popped Pixie. Round and round the lawn dashed Pixie with the collie after him, darting behind trees, grinning at him from behind the blue ageratum, and running round and round the tiny pool. Sunny finally gave up in despair, while I held my breath lest Pixie leave our garden to explore further. I coaxed and begged. I sat down and pretended to give up. Nothing availed me. Pixie came close to me, to show that he was still friendly, but kept always just out of reach of my hand. How I wished then that we might have been out in the country, so that we might have had a friendship on a basis of freedom. Finally, when I was just beginning to be seriously worried, I cornered Pixie in some shrubbery, and even though I had to make a quick grab at him as he dashed past me, succeeding only in catching him by the tail, he did not snap at me. I am sure that even Sunny, under like circumstances, would have snapped involuntarily.

As the summer nights became warm and fresh with the fragrance of flowers, we fell asleep every evening listening to the soft, staccato bark of Pixie. It was not irritating like the bark of a dog, but a wild, enchanting sound that followed faintly into the land of dreams—a bark which reminded me of a night under the desert stars in Arizona, when, roused by the light of a rising full moon, I raised my head from my bed roll and saw a shadowy form moving among our provisions, and then heard a soft whimpering answered farther off by the same soft bark. So, each evening, I went to sleep feeling the peace and immensity of the desert, hearing the soft rustle of the evening breeze in the sage and mesquite, smelling the aromatic fragrance of desert plants and knowing the wonder and peace of the wild.

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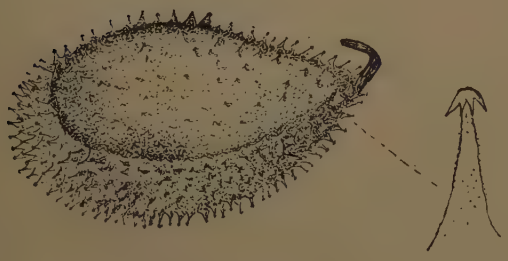
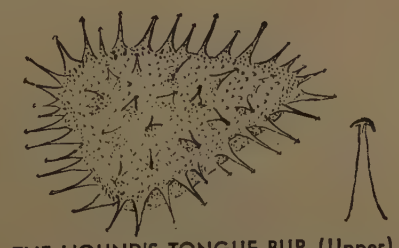


BURS OF COMMON PLANTS

NO. 7—HOUND'S TONGUE AND BEGGAR'S LICE

BY SALOME COMSTOCK-MILLER

HOUND'S tongue, *Cynoglossum,* and beggar's lice both belong to the borage family. Hound's tongue is a stronger looking plant than its relative. Its blossoms are also larger. One kind has attractive red blooms, and the other variety has rather large pale blue ones, resembling in shade the blue of the flowers of beggar's lice, *Lappula.*



THE HOUND'S TONGUE BUR (Upper) It is one-fourth inch long. Below is the eighth-of-an-inch beggar's lice

The burs of both plants depend for clinging upon anchor-like projections with two or more arms. Both produce the burs, four to each flower, along the outer portions of the branches in long, narrow, loose clusters, although sometimes the blossoms are so far apart that they could scarcely be said to form a cluster. Hound's tongue burs are the larger, although the hooks are much shorter in proportion to the size of the bur. Moreover, the hooks are rather evenly distributed over the surface, while those of beggar's lice occur in tufts, or rows.

LEADING A FROG'S LIFE

BY BEN HUR LAMPMAN

ILLUSTRATED BY R. BRUCE HORSFALL

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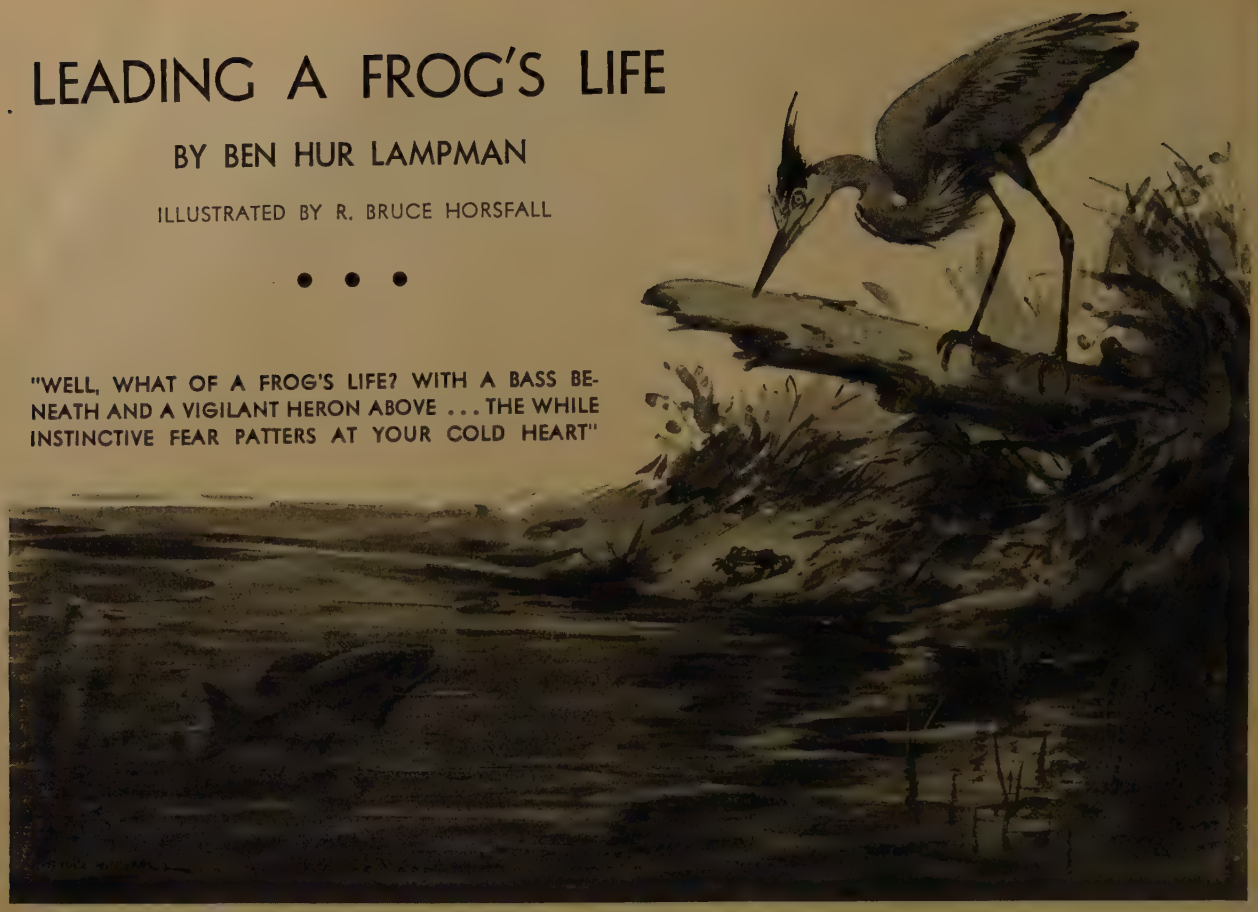

"WELL, WHAT OF A FROG'S LIFE? WITH A BASS BENEATH AND A VIGILANT HERON ABOVE . . . THE WHILE INSTINCTIVE FEAR PATTERS AT YOUR COLD HEART"

NONE of the batrachians, tailed or tailless, is distinguished for intellectual capacity. Midway between the fishes and the reptiles they think long, formless thoughts of their own. The emotions of joy and fear are given them, but little else of finer character beside. Joy because the temperature of the water is suited to the period of mating; fear for the reason that a branch has swayed above their pond, silencing their song. And yet so gravely wise they seem, the frogs and the toads, that one is tempted to write them down as philosophers, solely on appearance. This nondescript verse, attributed to some unschooled French-Canadian observer —who certainly never wrote it—very aptly, if ludicrously, describes the frog, a creature of the "almost":

> What a queer bird the frog are!
> When he sit he stand—almost;
> When he walk he fly—almost;
> When he sing he cry—almost;
> He ain't got no sense—hardly;
> He ain't got no tail—hardly, either;
> He sit on what he ain't got—almost.

What a queer "bird" the frog is, indeed, since he must proceed through the sorcery of an aquatic larval stage to the rights of amphibian existence. Hands he has, beyond dispute—almost—and he uses them as hands are used, to stuff reluctant, struggling food into his hungry, solemn mouth; or, as does the tree frog, to catch the branch toward which he leaped; or, as does the toad, his nearest cousin, to lift himself over the brink of an obstruction. And his voice is a true voice, being contrived by the passage of air over genuine vocal cords in an actual larynx. It is not to be wondered that he sings—almost; or cries—almost; or that, when the serpent has seized him with cruel ophidian jaw, his scream of terror is recognizable by human ear for what it is—the expressed agony of a fellow creature in direst distress.

Nature has not left the batrachian defenseless, however. The foolish dog that snaps at some sluggish, spraddling newt, is certain—if there is anything in the theory of instruction by experience—never to repeat that indiscretion. For the poison glands of the skin exude, by motor impulse, an alkaloid most unpleasant to the tongue; while there are savage peoples who contrive from the glandular exudations of certain toads a deadly coating for their arrows. This poison it is that causes the pranking collie to withdraw, with drooling mouth and lifted lip, from the garden toad he has thought to harry. And an awareness of this substance has taught the skunk, a creature quite fond of toads as forage, to tumble and roll the helpless batrachian in the grass, that the substance may be exuded and spent before its captor dines. These glands are protection to the batrachian, of whatever species—almost.

You have a phrase fitted to hard usage. "A dog's life," you say. Well, what of a frog's life? With a bass beneath and a vigilant heron above, and their hard eyes fixed on you, the while instinctive fear patters at your cold heart. Sing while you may, Sir Rana, and sing most merrily, for at times it is a happy existence—almost.

THE INDIAN SCULPTOR AND SOME OF HIS MASTERPIECES
He knows the wild animals of the Rockies intimately and has the genius to portray them in poses that are characteristic

WILD LIFE IN WOOD CARVINGS

JOHN L. CLARKE, BLACKFOOT INDIAN, SCULPTURES ANIMALS IN WOOD

BY DOROTHY PLETCHER

When John L. Clarke was a little Indian boy exploring the Rockies about forty years ago for a glimpse of birds and animals, and modelling them in mud, who ever dreamed that some day he would become internationally known for his wood sculpture of American wild life?

Nature subjects always fascinated him. "When a small boy he modelled and made pictures to tell of things he saw in the great outdoors," his wife told this writer. "He is passionately fond of everything in Nature, especially birds and flowers. Of a gentle, kind disposition, he is, above all things, spiritual." Undoubtedly this is the keynote to his keen understanding of all wild creatures.

This remarkable Indian wood sculptor first saw the light of day on a ranch at Highwood, Montana, in 1881. His mother, a full blood Indian, was the daughter of Chief Talking, while his father, half Scotch, was the son of Captain Malcolm Clarke, a West Point graduate who went to Montana and married the daughter of an Indian chief.

His tribe, the Blackfeet, called the youthful artist "Cutapuis", meaning the Man-Who-Talks-Not, for at the age of two, scarlet fever had cruelly deprived him of both speech and hearing. Unable to express himself by the ordinary methods when a child, he found a means of self-expression by modelling objects out of mud. He conversed with his father by drawing pictures and although he kept up this medium of expression for many years, no one, strange as it seems, recognized his extraordinary talent.

BEAR CUB
Bears are, in fact, his favorites as subjects

But it was when the lad studied wood carving for two years at a school for the deaf that he discovered his art possibilities. Those lessons in wood carving, followed by twelve years of carving decorative church altars, gave deciding impetus to his career, and from then on wood sculpture of wild life was to fill his whole life. In 1916 a New York art critic, W. Frank Purdy, attracted by the Indian sculptor's talent, had him submit two examples of his work to the National Academy, and Cutapuis has been exhibiting and winning prizes ever since.

With his wood sculpture Cutapuis finds

himself a master in a field that has hardly been remembered in the centuries since Gothic art held sway. And do not confuse mere carving in wood with sculpturing or figure carving such as Cutapuis excels in, as the latter is much more difficult. It is no small task to catch, as he does, the elemental wildness of the creatures of the Rockies and transfer it to a piece of wood! He also pictures his animals by painting in oil and in water colors, drawing in crayon, and modelling in clay. Through the years artists have flocked to his studio in Glacier Park, Montana, where he has lived since 1913, encouraging him and marvelling at his skill.

"Why and how did you begin to sculpture wild life?" I asked Cutapuis, and he replied by writing this:

"I carve because I take great pleasure in making what I see that is beautiful. When I see an animal I feel the wish to create it in wood as near as possible. When a boy, I first used mud that was solid or sticky enough—from any place I could find it. While I attended the Boulder School for the Deaf, in Montana, there was a carving class. This began my first experience in carving."

When beginning work on a subject, Cutapuis' first move is to sketch it as he has seen it in its native haunts. Then he finds beautiful rocks that are shaped by Nature to resemble mountain sides, cliffs, natural-looking crevices and cave-like openings where bears or goats might select a home. These he brings home from his trips in the wilds. He models them in miniature by first making a wire armature securely on the rocks and then modelling in Permodello, a clay that is absolutely hard, and cement-like, after drying.

"His mother bears are his best work," Mrs. Clarke explains, "as they are true Madonnas of the woods."

THE SCULPTOR IN TRIBAL DRESS
A member of the Blackfeet Indian Tribe, he may array himself thus

"His favorite animal subjects?" I queried of his wife.

"Bears and goats," was the quick answer.

His mountain goats, carved from native wood, are exceptionally well known. Although it is difficult, Cutapuis can procure flawless cottonwood of a cream-white color that is matchless for the goats. Then too, it has a tough texture which gives the hair effect in the carving. And by staining the hoofs and horns and the base a dark brown, a very lovely contrast is gained. The bears he has carved from walnut look like bronzes. For carving wolves and coyotes he frequently uses maple.

As if by magic an amazing parade of wild animals emerges from beneath this Indian artist's tools—bears, wolves, coyotes, Rocky Mountain goats, buffaloes and mountain lions. In his "Battling Buffalo"—two buffaloes are engaged in a gigantic struggle—he has miraculously caught the spirit of conflict between two powerful creatures of the outdoors. This masterpiece he carved from one giant tree trunk.

Although he portrays a variety of animals, his bears are the most popular of all. And why not, when we consider his delightful mother grizzly bear intently watching her frisky cubs in rough-and-tumble play, or the mother bear and cub leaning against a tree, the cub nestled in the mother's arms? However, he has carved a lovely female elk that runs the bears a close race in gaining the public's admiration.

Happily, John L. Clarke's wood sculpture may be seen in the Exposition of Indian Tribal Arts which opened in New York City on December 1, 1931, and is making a two-year circuit of the United States. It is hoped that this exposition, which is the most comprehensive showing of the arts and crafts of the American Indian ever held in this country, will effect a wider recognition of the Indian as an artist.

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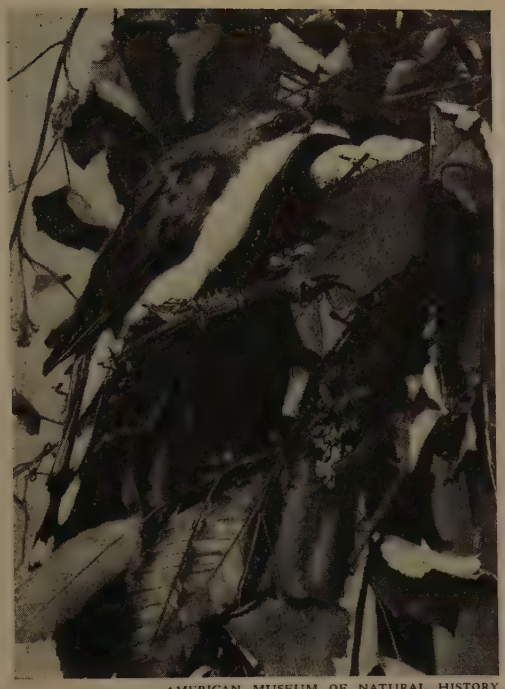
In the October issue of Nature Magazine twelve additional colored pictures of official State Birds will be published, supplementing the special feature begun in April. The entire booklet on Birds of the States is, however, available separately at this time and announcement relative to it will be found on the inside back cover of this issue.

TREES BRING NEW BIRDS

BY FRANK C. PELLETT



AMERICAN MUSEUM OF NATURAL HISTORY

Mr. Pellett is widely known as an authority on bees, but he is, likewise, a bird lover. In this little story he suggests what may be expected by a good planting of trees about a farm site.

SUNSET RANCH is located in southern Holt County, Nebraska. It is twenty-five miles from a railroad and situated in a neighborhood where much of the original prairie is still unbroken. When I planted my first pine trees in 1918 there was a typical list of prairie birds nesting there. Blue-winged teal, pintail and a few other wild ducks nested in the grass bordering the shallow ponds. Coots and grebes as well as yellow-headed and red-winged blackbirds nested among the cattails and rushes of these ponds. Bitterns, prairie hens, upland plovers, killdeers and burrowing owls were abundant. Nighthawks laid their eggs on the bare ground as did the mourning doves. The doves are among the most adaptable of birds for they seem equally at home on the prairie or among the trees. Marsh hawks hid their nests in the high grass and hunted over the meadows for mice and other small animals.

BIRDS COMMON TO THE FARM

Above, the yellow-billed cuckoo aids by eating injurious insects. At the left the western grebe and at the right the blue-winged teal that nests regularly at Mr. Pellett's Sunset Ranch

Wherever there is a tree to be found in the plains region the kingbird makes itself at home. The few cottonwoods already present furnished ideal homesites for them. I have found these birds living in remote canyons of the badlands where a single willow tree provided a nesting site and a view of the surrounding neighborhood. The settler has but to plant a single tree to bring a kingbird to his door.

My first planting consisted of one thousand pine trees. They were small in size and several years passed before they were large enough to offer either shelter or nesting sites for the birds. After the first five years, however, they grew very rapidly, increasing in height eighteen inches or more each season. More trees have been planted each year until we now have a total of about ten acres of conifers of varying size. The largest are from ten to twenty feet in height and make a dense grove attractive to the birds.

The mourning doves were quick to take advantage of the changing conditions. They now place their nests in the evergreens where they are sheltered from the storms and safer from prowling animals.

Although these trees have been planted only a few years, a great change in the bird life of the farm is apparent. With the years more birds may be expected. Warbling vireos are now common among the pines, as are yellow-throats and some other warblers. Both flickers and red-headed woodpeckers are frequently seen, although the pines are not yet large enough to serve them for nesting places. Probably they are nesting in cavities in the old cottonwoods. Robins, brown thrashers and rose-breasted grosbeaks seem as much at home in my new groves as they do in the orchards of the older settled neighborhoods where trees were planted many years ago.

Changing conditions will remove many species, but I will enjoy them while I may. In the meantime I will make the most of the opportunity to attract the largest possible list of species to my welcoming tree groves.

HARDY CACTUSES

THEY STAND EXTREMES OF COLD WITHOUT COMPLAINT OR HARM

BY FANNIE M. HEATH

OPUNTIA POLYACANTHA IN BLOOM

Its lemon-yellow flowers are spring-time features of North Dakota hillsides

OF THE one thousand different varieties of trees, shrubs and flowers that go to make up my collection in Grand Forks, North Dakota, few plants cause as much surprise to the visiting public as my specimens of hardy cactuses that will stand a temperature twenty or thirty degrees below zero without protection or harm. And no part of my entire grounds gives more days of freshness and rugged beauty than that devoted to these varieties I have gathered from species native to North Dakota.

There are at least four types of the Opuntias and three different Mammilarias in the garden. *Opuntia polyacantha* and *O. missouriensis,* with oval or roundish sections from three to six inches in diameter and thorns without number, are the favorites, and their cup-shaped blossoms with their china-silk texture are beautiful beyond compare. Some plants of these species bear blossoms that are entirely yellow while others verge from a yellow at the edge to a deep glowing red at the center which is topped with sparkling red anthers and stamens. These varieties form huge mats four to five feet across and five to six feet long, giving a most unusual effect.

Another specimen, *Opuntia rafinesquii,* has sections that are a deeper green and have fewer thorns. It is a shy bloomer, however, and quite rare in the State.

WHEN THREE CACTUSES GET TOGETHER

At the top is Opuntia missouriensis; Opuntia fragilis blooms in the center with pale yellow blossoms, and Mammilaria vivipara reveals its bright pinks just below

Opuntia fragilis, with easily detachable joints or sections only about an inch wide by two in length is also supposed to be demure in flowering but my plants have blossomed splendidly during the past two very hot, dry summers. The flowers are surprisingly large and show the same color variation as in *polyacantha* and *missouriensis.*

Two other plants, *Mammilaria vivipara* and *M. montana,* are very much alike and one must count the clusters of spines at the end of each of the tube-like parts to determine the difference. *Vivipara* has purplish-tinged pink blossoms while *montana* has clear pink ones. Both have smooth reddish green berries about half an inch wide by three-fourths of an inch long. These are edible—if you are very, very hungry.

Mammilaria missouriensis has smaller, straw colored flowers that are much less beautiful as to blossom but this lack is made up in the additional beauty of the bright scarlet berries that remain fresh and pretty until the following summer. All are free bloomers. I counted seventy blossoms open at one time last summer.

I find that cactuses will stand a great deal more water when given good drainage than most persons believe and that lack of water has caused the death of many.

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THE LAVENDER AND WHITE BLOOM OF HEMLOCK WOODLANDS

ORCHIS SPECTABILIS ENGAGES THE SERVICES OF BEES TO SURVIVE

ORCHID AND THE BEE

BY V. M. WATTS

DURING early spring you may find this attractive lavender and white orchid in the rich, moist woodlands of the eastern United States. It seems to be rather partial to the floor of hemlock woodland, but it is frequently found in other surroundings. This somewhat rare native flower propagates slowly, and if you have the proper spirit of conservation, you will refrain from picking it. In ten minutes you can easily destroy the reproduction of as many years.

If you are fortunate you may see, while watching this flower, an exceedingly novel bit of plant and animal behavior. When a female bumble bee approaches a flower of showy orchis, follow her closely.

The bumble lady alights on the lower lip of the flower and thrusts her long tongue down into its deep spur, in quest of the nectar secreted there. Then she flies away. If your eyes are sharp you may see that the appearance of her smooth, shiny head is now changed—that, although when she alighted she had but one pair of antennae, she now seems to have two. For as she reached greedily for the feast at the bottom of the spur, she forced her head against the anther sac in the throat and caused it to burst open. Two tiny buttons covered with a sticky cement promptly fastened themselves to the hard surface of the bee's head. Then when she drew away, she pulled out the pollen masses attached to the buttons.

Not for long, however, do these remain erect, like antennae, but soon droop until they point straight forward. This is their position until the bee seeks a feast in another flower of the same species. Then in their lowered position, they come into contact with the stigma, and cross-pollination is accomplished.

If you are so fortunate as to possess a spot where you can supply the conditions required by the showy orchis, and if the species is fairly abundant in your region, you might be excused if you should take just one plant for your wild flower garden. The best time to lift the plants is probably after the leaves have died down, in midsummer. It is well to move some of the soil and woods' mold from the spot, the better to supply the plant with favorable conditions in its new home. There, with care, it will come up year after year to gladden its corner.

SURINAM TOADS—WHOLESALE

BY WILLIAM M. AND LUCILE Q. MANN

THE Surinam toad, *Pipa americana,* the curious batrachian that carries its eggs and young in the skin of its back, was one of the early discoveries of the settlers in Dutch Guiana. The toads of the group that contains *Pipa,* and two other genera from Africa, differ from all others in having no tongues. *Pipa* also lacks teeth, and is unique and peculiar in the formation of its much flattened body and triangular head with a sharp nose and very small eyes; its hind feet have unusually broad webs; the front feet have long slender toes each of which terminates in small asterisks of sensory papillae. The back is rough with small tubercles and has five rows of larger tubercles some of which are connected with poison glands in the skin. The curious shape, the large size, the entirely aquatic habits, as well as the rarity and singular breeding habits of this toad made us very much desire specimens to exhibit at the National Zoological Park.

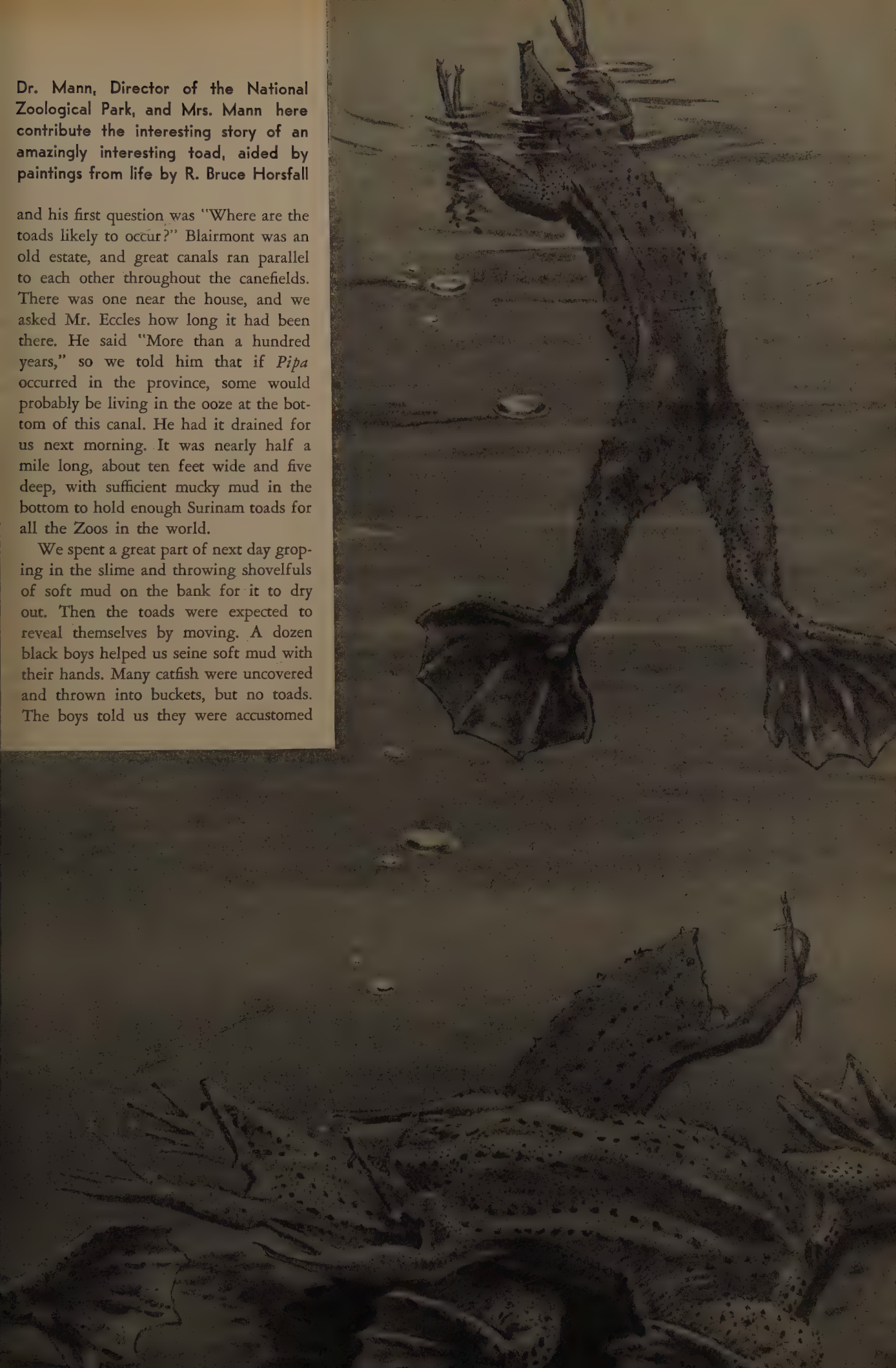
We were not the first to have this desire, for in the early 1880's, Mr. Sclater of the London Zoo saw some in Amsterdam, and he appealed to his friend Blaauw, a well-known Dutch naturalist who owned estates in Surinam, to try and procure some specimens for him. Orders were sent to Dutch Guiana, and later came Surinam toads,—at least they were toads and they came from Surinam, but they were not pipas. They were *Bufo marinus,* largest of the toads, and so abundant and widespread in tropical America that they are common in zoological collections. But the following steamer brought some of the genuine sought-for pipas. These were placed in an aquarium in Regent Park. In April of 1896 the mating habits were observed. After the female had laid the eggs the male rubbed them into her back, where they stuck and sank into her skin which had become exceedingly soft and spongy. A few paragraphs about this were published by Bartlett in the Proceedings of the Zoological Society in London, and since then apparently nothing has been learned of the habits of this toad, because every Natural History we have been able to find contains only an account based on Bartlett's original observation.

Now we had hoped to find *Pipa* in British Guiana, although the director of the museum in Georgetown told us it did not occur west of the Courantyne River which separates Demerara from Surinam. We hated to believe this; besides, we did not see why a river should serve as a barrier to a thoroughly aquatic toad. So, provided with an introduction by long-distance telephone to the manager of a large sugar plantation, we went into the province of Berbice, British Guiana. Our host met us

Dr. Mann, Director of the National Zoological Park, and Mrs. Mann here contribute the interesting story of an amazingly interesting toad, aided by paintings from life by R. Bruce Horsfall

and his first question was "Where are the toads likely to occur?" Blairmont was an old estate, and great canals ran parallel to each other throughout the canefields. There was one near the house, and we asked Mr. Eccles how long it had been there. He said "More than a hundred years," so we told him that if *Pipa* occurred in the province, some would probably be living in the ooze at the bottom of this canal. He had it drained for us next morning. It was nearly half a mile long, about ten feet wide and five deep, with sufficient mucky mud in the bottom to hold enough Surinam toads for all the Zoos in the world.

We spent a great part of next day groping in the slime and throwing shovelfuls of soft mud on the bank for it to dry out. Then the toads were expected to reveal themselves by moving. A dozen black boys helped us seine soft mud with their hands. Many catfish were uncovered and thrown into buckets, but no toads. The boys told us they were accustomed



to searching in the mud at the bottom of canals for fish, had done so for years and had never seen any such monsters as we had described to them. We decided that the museum director in Georgetown had been right.

We were not impossibly far from the frontier of Dutch Guiana. Half a day in an automobile took us to Springlands, the last outpost on the British side, and the British customshouse boat took us over to Nickeri, two hours away on the Dutch side of the Courantyne. Here again, at the sugar estate of Waterloo (named after the battle that occurred at the time the estate was founded) we were kindly received. A canal had just been emptied, so the estate provided us with a force of twenty-six Javanese laborers and immediately we went toad-hunting in the mud. No toads. We were working in a country where the sun heat at mid-day ranges from 150° to 175° F., and there was no shade offered by the sugar cane. It was hot and disappointing work. We seined a canal, two natives manipulating a twelve-foot seine and hauling it in at twenty-foot intervals. They did haul up a fine snake, which made them very uncomfortable as they did not like to turn it back in the water in which they were wading up to their necks. We scooped it up in a butterfly net and put it in a bag. But again there were no toads.

WHERE THE TOADS WERE HUNTED

These ancient canals were the logical abiding place for the sought-for batrachians, but yielded none

Day after day we scraped mud from the bottom of canals and forest pools and did everything we could to locate specimens. The assistant manager of the plantation, himself born in Paramaribo, knew what *Pipa* was. When a boy at home he had caught specimens and played with them, but during fourteen years in this section he had never seen one. So we decided we were in the wrong place and reluctantly gave up the chase. It was necessary because underneath the hotel in Georgetown were some ninety crates of animals, birds and reptiles, waiting for us to bring them home alive to Washington.

On the way to Georgetown, two months before, we had stopped for a day in Paramaribo, and there had met a local naturalist. He promised to get us some of these toads if it was possible, but he told us that during the season of high water these toads were scattered far and wide and were almost never seen. In fact, the Director General of Agriculture of the Colony, himself a keen observer of animal life, informed us that sometimes years would pass without any toads being seen at all, and then one day a canal would be emptied, or a forest pool dried up, and dozens of our sought-for pipas would be found at the bottom. Some years ago when we were in Rotterdam the director of the Zoo there told us that despite the fact that there was constant communication between Paramaribo and Rotterdam he had tried for five years before he finally secured specimens. On our return to Georgetown we found a letter from our naturalist friend telling us that at this season of the year it had been impossible to locate a single specimen. Toad-less, we returned to Washington.

Captain Lum of the Munson Line had taken an interest in our collecting activities. It was perhaps not exactly clear to him why we should be wandering about the hot countries looking for toads, but the spirit of the chase appealed to him and he told us that if our friend in Surinam caught any he would bring them himself to New York.

Three months after we landed, there came a radiogram from this Captain, "Arriving New York Sunday with two boxes pipas." Then came an airmail letter from our Guiana friend telling us that *ninety-four* toads were being forwarded! It was altogether too good to be true. We remembered that the London Zoo had once been disappointed in getting *a* Surinam toad instead of *the* Surinam toad. Besides, nobody ever saw ninety-four specimens of *Pipa*.

Anyway we met the boat, and several naturalist friends of ours in New York helped us meet it. Captain Lum—may his tribe increase—greeted us on the deck of his ship, and we all hurried expectantly down into a dark

but warm place in the hold, where our searchlights showed us that we had been too sceptical—the Captain and our Guiana friend were right. In two large wooden boxes, partially filled with water, the ninety-four pipas lay, like rough brown overlapping shingles. One of the Munson officials ran off the boat to the dock and acquired two large milk cans. Into these we put about half the toads, with warm water secured for us by the chief steward. The rest had to stay in a box, but we wrapped the box in blankets to protect it against the chilliness of a January evening. In a few minutes we were hurrying to the railroad station with our prizes.

Pipa americana has two distinct calls, one of them a long-drawn-out P-e-e-e-pa, from which the natives evidently named the toad originally. The other call is a clackety-clack very similar to the sound made by the small metal disks wabbled between the fingers and used by the past generation (ours) to annoy school-teachers in class. One is not supposed to carry toads, even such rare ones, at night on a Pullman, and I spent my wakeful hours —which were all the hours between New York and Washington—tapping first one can and then the other in order to hush-up the new pets.

We landed early in the morning and before daylight had them distributed in various aquaria in the reptile house. The clackety-clack noise can even now be distinctly heard through the 1½-inch plate glass that forms the front wall of the aquarium.

TOAD FINGERPRINTS
The peculiar tip of the toe on the fore foot of the interesting Surinam toad

The baby pipas pass their tadpole stage in little pouches in the skin on the mother's back, after which they emerge as perfectly formed toads. I do not think that this has ever been actually observed. Specimens have laid eggs in captivity but the mother has died before the young developed. Our toads, however, have been distributed to various Zoos that have reptile houses, and to students of batrachians, and it is hoped that more definite observations will be made.

They are feeding on small fish, tadpoles, little frogs and earthworms, and we hope that for a long time visitors to the Zoo will be able to see and enjoy the pipas —that we didn't get and did.

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MAKING LEAF PRINTS

BY P. M. HELMS

PHOTOGRAPHS OF TWO LEAF PRINTS
The characters of the leaves are thus successfully preserved and the prints do not break as do the actual specimens

PRINTS of leaves are much more satisfactory than pressed samples of the leaves themselves, and are most easy to make. The materials are a thick piece of glass about 12 by 15 inches, a tube of printer's ink, either black or green, a rubber roller, such as photographers use, sheets of white drawing paper, and old newspapers.

The prints are made by placing a small amount of printer's ink upon the glass and spreading it smooth with the roller. The leaf is then pressed vein-side down upon the inked surface, covered with a piece of newspaper, and rolled with the roller until thoroughly inked. It is next transferred from the glass to a sheet of drawing paper, covered with a clean newspaper, and rolled *just once*. A second rolling may cause it to smear. When the newspaper and the leaf are lifted, a beautiful print remains, useful for an indefinite period.

A TALE OF A PROUD PEACOCK

BY CAROLINE B. SHERMAN

ILLUSTRATED BY R. BRUCE HORSFALL

He who has lived daily with a lordly peacock has had his full share of amusement, irritation, pride and chagrin. On our large farm in Virginia we had, in succession, three fine peacocks, each living to a good dozen years, but none was quite as gorgeous or quite as absorbing in manners and morals as the last—Sir Roger de Coverley. To the uninitiated he was indeed the courteous and gracious country gentleman and squire. To those of us who knew him daily he often showed a different nature.

"As proud as a peacock" is no empty phrase. On almost any bright sunny day Sir Roger could be found on the south lawn preening his marvelous iridescent feathers in the dazzling sunlight and unfurling the long covert feathers of his tail so that, instead of trailing behind him, they stood like a great gorgeous fan, eight feet across, erect behind his proud and lovely head. Here he would strut about on his tiptoes, turning this way and that so the sun could strike every part of his magnificent fan and make the bright feathers in it glisten and shimmer like liquid enamels, bronze and gold.

Every part of Sir Roger was beautiful except his feet. Never attractive at best, they had soon become frostbitten and deformed because he insisted on roosting up in the tops of high trees at night, even in winter. If, when strutting and balancing on his tiptoes, Sir Roger leaned too far over and caught a glimpse of those poor ugly toes of his, all of his pleasure in his princely fan-tail would collapse. He would quickly close his wonderful fan and trail it rapidly but gracefully away out of sight.

Late every summer, when those long and lovely feathers dropped out one by one, his vanity also suffered severely. He no longer blessed the lawns with his decorative presence but went off in the fields all day and came up to the house only for meals. We had always plucked out the feathers of our peacocks when they first came loose, because all our friends wanted the lovely things. But when we tried plucking Roger we found that it hurt his feelings so acutely—that he felt so mortified to lose all his wonderful glory at once, instead of just a little at a time—that he would disappear into the fields for two or three weeks, not even coming to the lawns for food but living on the grasshoppers, insects and worms he caught in the grass. As we were afraid something would happen to him while he was off by himself we stopped plucking him and contented ourselves with roaming around hunting for his feathers, hoping to pick them up as fast as he dropped them.

Yes, there was one other thing about Roger that was not beautiful and that was his voice. He evidently thought it another point for infinite pride. He loved to let it out in great squawks that sounded for all the world like the noise of a very old, very rusty, very exaggerated pump handle. Some of our neighbors who did not love Sir Roger as we did said that they heard him a mile and a half away. He always chose high and dramatic locations before making his choicest calls. Enraptured, he would listen to the echoes and send out yet more piercing shrieks to rend the quiet country air.

But to come back to his vanity. Sir Roger loved to admire himself in the glass as much as any lovely lady ever did. We built a frame or roost just outside one of our windows and here he would sit and watch his reflection

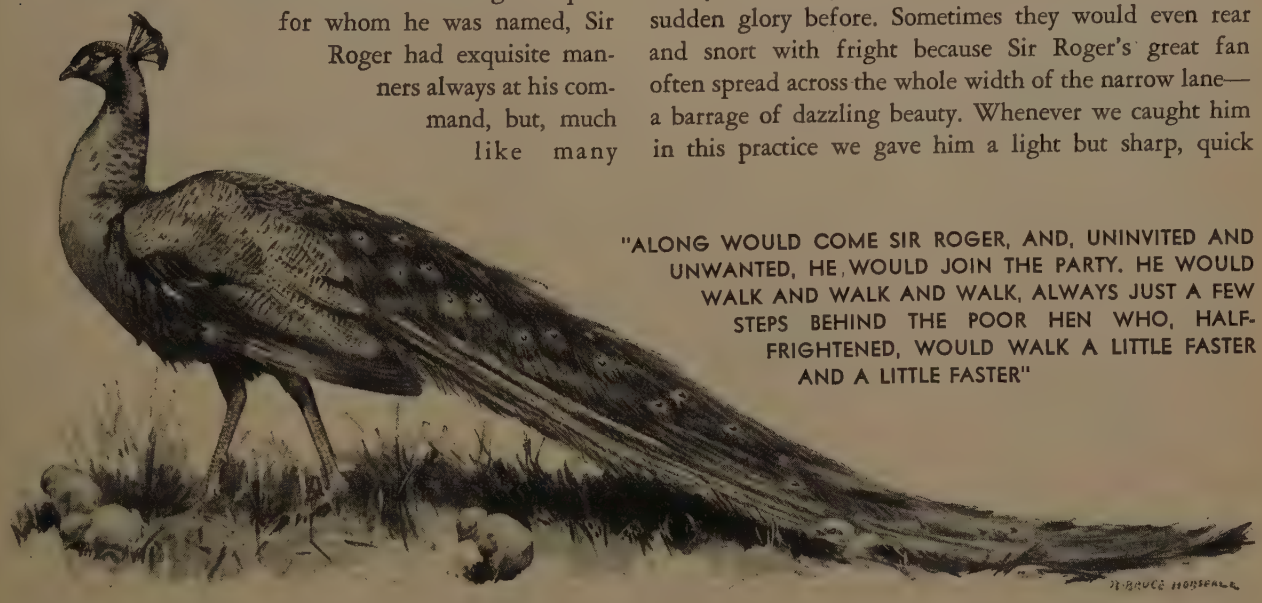
in the glass of the window by the hour, turning his head this way and that, preening and admiring himself first in one pose and then in another.

And one day he had a real mirror. Roger's wings were strong and he was always as inquisitive as he was clever. One day he flew up on a porch roof, from there to the roof of a low wing of the house, and from there in through an open window on the second floor where the screen was out. Here at last, in the big old-fashioned bedroom, he found a real mirror. When my mother, all unsuspecting, entered the room for her afternoon nap, there was Sir Roger perched on the bureau, gazing rapturously at himself in the big mirror, as usual turning his head this way and that with long graceful movements so he could see himself from every angle. As my mother stood still, watching him, she made a discovery. Every now and then he would stop gazing at himself for a moment, would look critically at the pincushion in front of the mirror, and then would reach down with his long beak and peck out one of the bright stones from the jewelry in the pincushion and drop it on the floor, exactly as if

he didn't want anything around that could vie with his beautiful colors. That was too much for my mother. She loved Sir Roger but she loved her pins and rings too. She rushed forward to protect them. And then, what a hubbub! When Roger spread his huge wings and began half hopping and half flying about he seemed as big as the room itself. He had never been in the house before and he grew frightened and confused and either wouldn't or couldn't go out of the window where he came in.

One by one the whole household ran to the room to see what the noise was all about and it took all of us to catch that great bird. When he was finally out, mother began to look for her stones but could see only a few. She was in dismay, but the little folk crawled under the bed and looked under the bureau and in all the corners; everywhere they found something—here a turquoise, there a garnet and somewhere else an amethyst.

Like the courteous English squire for whom he was named, Sir Roger had exquisite manners always at his command, but, much like many lesser men, he did not always use them. One of his most annoying tricks was his treatment of setting hens and hens with little chicks. When a patient hen would be sitting, quietly, all day on her nestful of eggs, Sir Roger would come walking daintily up to the door of her little coop and there would pause and look. And he would look and look and look and look, turning his head this way and that, that way and this, but never taking his eyes off the hen, until finally it would make her so nervous and fidgety that she could stand it no longer. Off the nest she would fly, screeching and cackling as she went, leaving the eggs to get cold.



"ALONG WOULD COME SIR ROGER, AND, UNINVITED AND UNWANTED, HE WOULD JOIN THE PARTY. HE WOULD WALK AND WALK AND WALK, ALWAYS JUST A FEW STEPS BEHIND THE POOR HEN WHO, HALF-FRIGHTENED, WOULD WALK A LITTLE FASTER AND A LITTLE FASTER"

This was bad enough, but after the hen had stood this many times and gone back to the nest again and again, and finally hatched out her eggs, even then Sir Roger would not let her rest. Mother hen would be taking her little brood out for a morning walk. The lively, fuzzy little balls of down would cheep along over the clipped grass, stopping to play and to rest and to peck at insects. Along would come Sir Roger, and, uninvited and unwanted, he would join the party. He would walk and walk and walk, always just a step behind the poor hen who, half-frightened, would walk a little faster and a little faster. If she faltered in the least, Roger would give her a little peck to hurry her on again, on and on and on, until the poor little chicks would drop down on the grass, one by one, they were so completely tired out. "If Sir Roger were only not so beautiful," we would exclaim, "we would certainly get rid of him and spare these poor old mother hens and their poor little chicks!"

He had another habit compounded half of vanity and half of iniquity. In that day our visitors came in horse-drawn carriages. As they came up the long winding lane between the banks of honeysuckles and cedars, Sir Roger would quickly spy them and march sedately out in greeting. Just before he reached them he would spread his gorgeous tail, rattling his feathers noisily and proudly as he unfurled the wondrous fan under the very noses of the astonished horses. He was the only peacock in the county and many of the horses had never seen such sudden glory before. Sometimes they would even rear and snort with fright because Sir Roger's great fan often spread across the whole width of the narrow lane—a barrage of dazzling beauty. Whenever we caught him in this practice we gave him a light but sharp, quick blow with a switch and he would drop his feathers at once and slip swiftly away. But he learned to go farther and farther out the lane to meet the horses, hoping we would not see him and he would escape punishment.

He had his match in our old gray horse Dan, the quiet, safe, reliable horse that the children drove. Dan knew Sir Roger for just what he was—a big, beautiful bluff. When Roger strutted out to meet him and spread his gay plumage under Dan's plain old gray nose, that negligent nose would just drop down a little lower (he never had a check rein) and give Sir Roger a good-natured and contemptuous push. Then Dan stepped quietly and steadily ahead because he knew that Roger would unfailingly fold his feathers quickly and step lightly out of the way rather than run the slightest real risk. Over and over again we vowed to slay the gay brigand when he waylaid some new visitor's horse but somehow we never did. What would Ash Grove be like with its wide green fields and wide green lawns without our beautiful bird of many colors?

And then he disappeared entirely. For days we looked

and called; called and searched, in vain. Sir Roger had never been known to leave the farm in all his life and we were thoroughly alarmed. Sometimes when I was lying in my four-post bed in the big west chamber it seemed to me that I could hear Roger's voice, very faint and far away, but the family put aside this idea of mine as a twilight fancy. Now that he was gone, we all promptly forgot his faults. Even our long-suffering neighbors, and the chickens and horses, seemed to miss him.

One day some friends drove peacefully up the drive to have luncheon with us.

"I actually wish Sir Roger would come out to greet us and frighten Rob Roy with his wonderful fan!" cried the friend.

"I am afraid he will never do that again", said my father, "but anyway give Rob Roy a good luncheon". This to black Sambo, the stable boy. Now when our visitors were to make us a good old-fashioned visit we fed their horses in an oblong feedbox which we placed on a pedestal at the hitching post in the west lawn not far from my bedroom windows. When the horses had finished eating, the box was turned neatly upside down at the foot of the hitching post so rain water would not collect in it.

"Yes, sah; yes, sah, Cap'ain", answered Sambo, as usual, as he turned up the feedbox with a flourish.

Out from under that upturned feedbox, bedraggled, crumpled, forlorn and hungry, crawled poor Sir Roger de Coverley, no longer proud and boastful, but alive! He had hopped up on the edge of that box fully ten days before to peck up the oats a horse had left and his weight had tilted the box exactly over him. It was late summer so his new tail was short and the big box just fitted over him. There was just enough grain in the box to keep him from starving and probably summer showers had given him a few drops of water to drink.

"So you must have heard him in the night, after all!" said my father to me, while one and all we crowded in jubilant welcome about our treasure and our tyrant; our pet and our pest—vain, mischievous Sir Roger de Coverley.

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PICKEREL-WEED

BY
BESSIE L. PUTNAM

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We must go to the pond or marsh for the wondrous bit of blue that is the flower of the pickerel-weed. It is a water loving plant and may grow so near the bank that in late summer, when many of the marshes are dry, we may go within easy reach without getting our feet wet. But often it eludes us by choosing a water hole just beyond our reach.

The blossoms are found from June to October and are of a clear blue altogether too rare at that season. Although each floret is short lived, there are so many of them opening successively on a spike that their season is a long one.

The blooms are tripartite, like those of the lily. But the parts of the lily flower drop as they grow old while those of the pickerel-weed wither above while the base hardens around the fruit. The flowers are somewhat two-lipped, after the fashion of the snapdragon. The tube is curved and longer than the lobes. The middle lobe of the upper lip has two yellow spots, doubtless for the purpose of calling some insect friend that will help solve the problem of cross-fertilization.

The abundance of straight, slender leaves that appear in the background of the photograph do not belong to the pickerel-weed. They are flags, next door neighbors. Only two of its own handsome leaves are shown, in the foreground. They are sometimes more heart-shaped, sometimes arrow-shaped, and sometimes nearly rounded, varying in outline after the manner of many water plants. They are always a bright, shining green, and the plant would be decidedly ornamental if it never had a flower.

The pickerel-weed often mingles with the white arrowhead, the leaves of which are similar though smaller and less distinctive. It grows so freely both north and south that it will pay you to make its acquaintance if you do not already know it. It has a distinct individuality in form and color that will render it easy of recognition when next you visit a marsh.

FLOWER OF THE FIREWEED
At the lower right note the bumblebee taking a siesta on the bloom

SCATTERING ITS SEED
Each pod contains some 450 seeds and there are about 120 pods, so fireweed spreads

FLOWERING FIREWEED

BY A. BROOKER KLUGH

One of the most interesting flowering processes of all the thousands that take place during the summer is that of the common fireweed, *Epilobium angustifolium,* that flaming denizen of the "burnt lands." It ranges from Labrador to Alaska and south to North Carolina, Kansas, Arizona and California, and I have studied it with great delight for many hours in the clearings that dot the spruce woods of New Brunswick, where grow plants that measure ten feet in height.

First the flowers of the lower part of the spike open, at a time when the upper part of the spike is thickly set with buds. These are progressively larger from the apex downwards, and the lower tiers stand out horizontally, at right angles to the stem.

As the period of blooming progresses the zone of flowers passes up the spike, which continues to elongate. The result of this growth is that the plant is several feet taller at the close of the period of blossoming than it was at the beginning. As the zone of flowers passes up the spike, seed-pods in various stages of ripening are left behind, until finally a few flowers near the apex crown a long spike of spreading seed-pods. In the case of long spikes there are usually a few buds left at the tip which never open.

The blossoming of a spike covers a considerable period. In the case of a spike which I had under observation one summer the first flower opened on June 25 and the last withered on September 5. This is a remarkable record.

The flower of the fireweed consists of four narrow sepals, four magenta (pale or deep) or sometimes white, petals, eight stamens, a pistil with a long style and four spreading stigma lobes.

The life history of a fireweed flower, from the opening of the bud to its withering, extends over forty-eight hours. When the bud opens the stamens are mature and shed their pollen the first day, dusting it over the insects which visit the bloom. This pollen cannot pollinate its own flower, however, because at this time the style is short and bent far backwards, and the stigma lobes are closely pressed together in the form of a little club. As the anthers burst, the style is lengthening, and on the second day, by the time the last anther has burst, it stands at right angles to the stem, and the stigma lobes are widespread and curled backwards, to receive the pollen brought by insects from other flowers. This is Nature's way of preventing inbreeding, and insuring strength for the plants.

The chief pollen-carriers are the bumblebees, although many smaller bees, wasps and numerous species of butterflies also visit the flowers, and the attractive day-flying clear-wing Sphinx-moth, *Hemaris diffinis,* is a not infrequent visitor.

Bumblebees often sleep on the fireweed at night. In one of the photographs may be seen an individual of

Bombus borealis, one of the commonest bumblebees of late summer in New Brunswick, hung up asleep on a flower. This individual did not wake up for some time after I had photographed her.

The fireweed produces many seeds. A large spike bears one hundred and twenty-one pods, each of which contains, on an average, four hundred and fifty seeds; so a single plant may produce some fifty thousand seeds. These are neatly arranged in rows in the four-sided pods, each seed with its coma of white hairs pointing towards the apex of the pod. When the seeds are ripe the four walls of the pod split apart and spread widely, and the seeds as they dry puff up into a fluffy mass ready to be carried far and wide by the slightest breeze, to bring beauty to the waste places and to repeat the story of the flowering of the fireweed in its fascinating cycle.

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THEY BRING PLAGUE

FACTS ABOUT AN INSECT SCOURGE

BY A. B. CHAMPLAIN

LOCUSTS have been famed from antiquity as destructive agents. In the tenth chapter of Exodus appears the most graphic account of a locust march ever written—the story of the eighth plague of Egypt. To punish and intimidate Pharaoh, who had rebelled against Him, Jehovah commanded Moses to stretch forth his rod over the land. The locusts, brought by an east wind, arrived in countless myriads, and multiplied in such prodigous numbers that they ruined vast areas of land and in a short time reduced the whole country to misery. After Pharaoh had promised to allow the children of Israel to depart, a west wind swept the insects away again.

THE CAROLINA LOCUST

This insect has black and yellow hind wings and lives in sandy places. The male, in flight, makes a loud clacking sound

The migratory locust of the hotter countries comprises one of the most dreaded plagues that can pass over a land. In Asia and Africa the extent of their invading armies almost exceeds belief. Accounts of the ravages of these fearful pests of agriculture appear in the literature and histories of these lands as outstanding features in the economy of their civilization. They tell how the insects, swarming in countless numbers, obscured the sun like dark clouds; how fertile lands were turned into arid deserts, and of pestilence that followed.

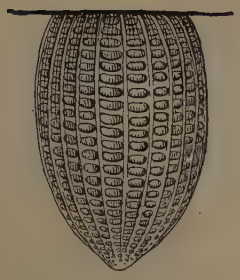
Locusts are abundant in many parts of the world. In northern countries, where they multiply less rapidly, their ravages are less disastrous, though still considerable. The Rocky Mountain locust has caused devastation and ruin in our western country, while in the east the lesser migratory locust does considerable damage. Other species, among them the Carolina locust and the red-legged locust, are troublesome forms. A South American variety has raised havoc in Argentina. In the territory that has been invaded by the hosts of these voracious insects, experiments are being made to combat them with poison gases, the latter to be administered by aviators.

True locusts or short-horned grasshoppers belong to the family Acrididae, of the insect order Orthoptera. A related group, the true grasshoppers, are slender greenish insects with long horns or antennae, belonging to a family next in line, which unfortunately was called in scientific terms Locustidae. Just remember, however, that the true locusts do not belong to the family Locustidae. Another unfortunate misuse of the name "locust" is common in the United States. The periodical cicada is called by many persons the seventeen year locust, and other species of cicadas, which are not locusts at all but belong to quite a different order in insect classification, have been likewise mislabelled.

The true locusts resemble the grasshoppers in many characteristics. They are insects whose metamorphosis is incomplete; they undergo only trifling changes and never have any period of inactivity from the time the eggs are hatched until they are fully developed. After hatching from the eggs, the young resemble their parents, differing only in size and in the absence of wings. Changing their skin or moulting the required number of times, they gradually reach their full growth. At first the rudiments of wings appear, then after a final moult these wings become free and the insects, now full grown and of adult estate, launch themselves upon the world.

Locusts deposit their eggs in oval masses or tunnels in the earth, logs, or stumps, covering them with a tough material for protection. The hole is then plugged with a gummy substance. It is in the egg stage that locusts pass the colder months, most adults dying in winter.

Sounds are made by many of the males. One method is a shrill stridulation caused by rubbing the inner surface of the thighs against the outer surface of the wing covers. Another is the clacking sound when flying, made by rubbing together the upper surface of the front edge of the hind wings and the under surface of the wing covers.

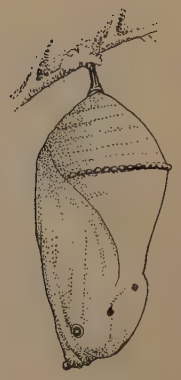


EGG OF MONARCH BUTTERFLY

And, at the right, the Chrysalis of the insect

THE "EPHEMERAL" BUTTERFLY'S JOURNEY

BY CAROL H. WOODWARD



THE AIR may be warm and the leaves remain green the latter part of August, and the birds may remain for many weeks, but the familiar brown monarch butterflies that have been flying through city and country since early May will soon be starting on their autumn journey. Wary, even before the human race has realized the changing season, the monarchs begin to gather in hordes for their fall migration.

In thousands, even millions, they assemble, dotting the sky in their flight, oblivious to any interference. A butterfly net is passed through the swarm, catching, perhaps, a hundred, and the others will fly on undisturbed. Steady, unheeding, they pursue their southward course. In a day, when they stop to rest, they will transform the verdant trees to russet. Clinging to twigs, they are absorbed as in flight by their one purpose. A branch of them may be cut from a tree and they will scarcely flutter. They are as firmly fixed as the leaves their wings are hiding.

DOTTING THE SKY IN THEIR FLIGHT

Steady, unheeding, they pursue their southward course, urged on by some mysterious call

Why the butterfly migrates when autumn comes, no one has yet satisfactorily explained. If it required food, the need for new pastures might be the reason. But the butterfly eats little. Occasionally it nibbles the honey dew from a fresh green leaf, licks the sap from cut wood, extracts the nectar from a flower, or sucks the intoxicating juices from bruised fruit in an orchard; but that is all. The way it gorges itself in the caterpillar stage gives it almost enough sustenance to carry it through its other three phases of life.

Weather seems an equally unlikely reason, because August, when the migration begins, seldom brings sufficient change to prompt the concerted movement of millions of small creatures, and it is frequently warmer than May, when this same species enters the northern climate.

The monarch's flight may be the equivalent of warfare among men—a natural means of killing off part of a rapidly growing race. The rigors of a flight of from one to two thousand miles, undertaken by creatures the very scales of whose wings fall off and leave them incapacitated at the merest touch, are bound to work disaster in the horde.

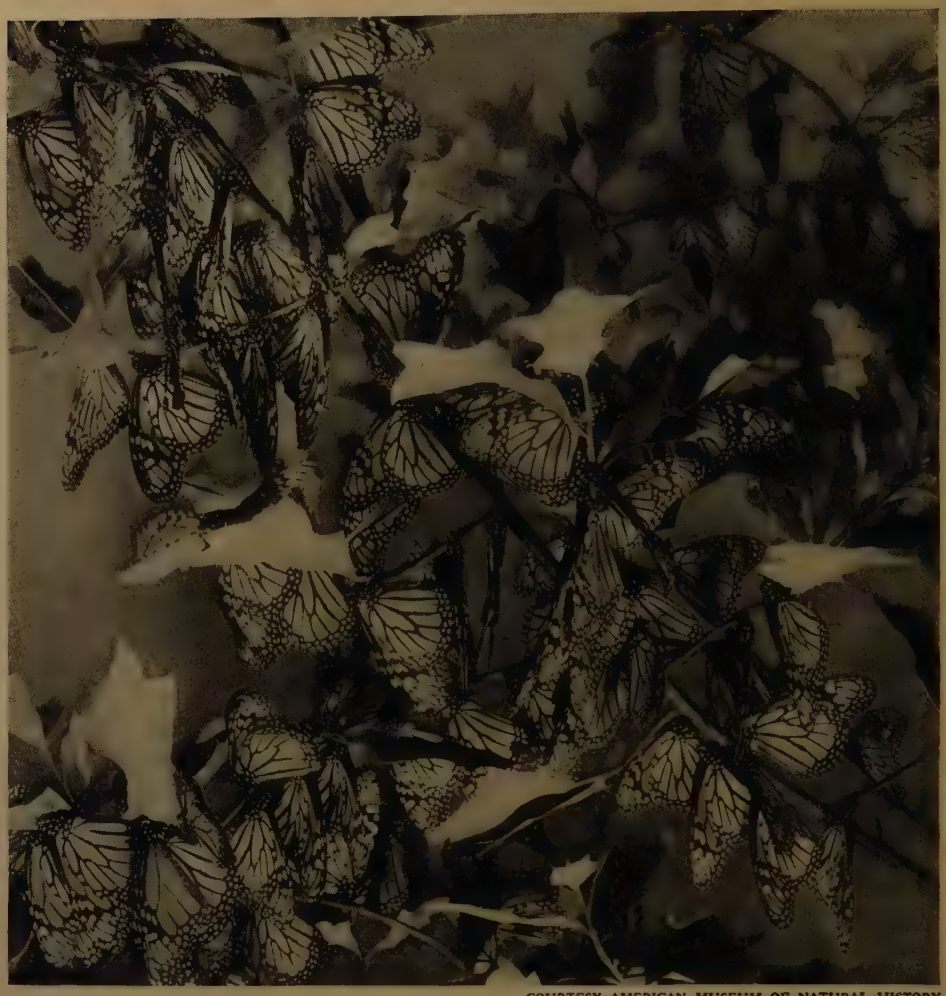
There may be an inheritance of gypsy blood in the butterfly that sets him on the wing every year when fall approaches, but it can be no more than an inheritance that directs his course southward at this season, for there is no one to lead the way for him. The butterfly which traveled south the preceding fall has died long before his descendants are ready to leave their northern home.

Perhaps the migration is instigated by a desire for further breeding, and as such is as inexplicable as the movement of salmon upstream from the ocean every spring.

However, the fact remains that the butterfly does migrate, and that after a leisurely winter spent in southern sunshine, the monarch comes north, the progeny to journey south again the following autumn.

The northward dispersion is begun unobtrusively when the mother butterfly lays her first eggs on the delicate milkweed shoots found in southern fields. One at a time, over a period of many days, she deposits her little striped sugar-loaf eggs. Though scarcely visible to a passer-by, each egg is a tiny green loaf, marked by about twenty-two longitudinal ridges with several cross-lines and a delicate rosette of cells at the summit.

In four days the egg turns into a hungry little caterpillar, who first eats the eggshell, then a bit from the leaf which was his cradle. After this he retires until he is hungry again. This is not long, and in a couple of days he has eaten so much that a new and larger skin is neces-



COURTESY AMERICAN MUSEUM OF NATURAL HISTORY

BLOTTING OUT THE LEAVES, SO CLOSELY DO THEY CONGREGATE

Detach a branch and they will cling undisturbed to it

sary to accommodate his increasing bulk. So the old skin, which was protected by a few soft hairs, is shed, and a new one, entirely hairless, appears beneath. Three times more during his eleven days of growth he moults, growing visibly fatter as he consumes each day more than his weight in milkweed leaves.

He flaunts his sleek corpulence in the sunlight because he knows he is secure from the ravages of birds. The caterpillar of the monarch, like the butterfly itself, is nauseating to other creatures, and the sight of the black and white and yellowish-green stripes atop a milkweed plant is the signal for the forager to seek his dinner elsewhere. So it is just as well that the monarch migrates.

After the fourth moult, when he is about two inches long, the caterpillar hitches the two prolegs near the rear of his body to a firm surface—perhaps one of the larger milkweed leaves which he has not attempted to eat—and there hangs, with head curled slightly upward like the curve on a letter J.

He spins a silken button to affix himself more substantially to his foothold, and as he hangs there the juices of his body gravitate toward the head. The shape becomes changed. Within and without this sluggish creature a transformation is being wrought. The old skin splits down the middle of the back, and the one-time caterpillar pushes his head out through the opening. He is no longer recognizable as the crawling, striped thing which was gorging itself on milkweed only a few days before. The new skin hardens, turns a delicate emerald green, and acquires decorative spots of gilt and black. Like a jewel the chrysalis hangs by its silken button.

Within a week its green begins to assume a brownish tone, and distinct dark markings appear upon it. In a few days more it bursts open to give birth to a handsome brown butterfly, the wings striped in black and spotted in white, a monarch in mien as well as in name. The wings are limp at first, but within a few hours they become dry and firm, and the butterfly is ready for flight.

The first field that offers tender milkweed sprouts is the goal, and the female butterflies there, like their predecessors, deposit their sugar-loaf eggs on the terminal leaves.

Whether the mature butterflies going northward die as soon as eggs are laid, or whether they fly onward with the rest, dropping along the way or perhaps reaching more northern regions, authorities seem not to have determined. Who, in fact, has ever seen more than a few dead butterflies? Tracing their lives is a fairly simple procedure—though much still remains to be discovered—but following them to their death is much less certain and has revealed little in the case of the monarch.

Weather, climate and season affect the length of life of all butterflies. Among the monarchs, the insects born on the way north in spring live *presumably* only about a month, while those which emerge from their chrysalides in the north spend the summer in pleasure flying, the fall days in migration, and the winter months flitting about leisurely amid the luxuriant greenery of the south. But all these presumptions are by no means yet established as facts. Butterfly lore, considering its extent, has scarcely been touched by naturalists.

But whether or not the preceding generation remains alive, the cycle from egg to caterpillar, from caterpillar to chrysalis or pupa, from pupa to butterfly, and from butterfly to eggs again is repeated regularly as the monarch travels. Each batch of eggs is laid a little farther north—just as far as the butterfly can find the milkweed shoots at the right stage for receiving the mother's deposit. The

sprouting of the milkweed is followed by the successive generations of butterflies all the way to the north, and when the plant is no longer giving rise to young shoots, the monarchs, so far as scientists have been able to observe, cease producing until spring, when they are again in the south. The northern dweller is thus apparently the longest-lived in the year's cycle of monarchs.

Some of the butterflies in their northward dispersion through the summer travel as far as Hudson Bay. Some, however, linger along the way, and it may be that they are picked up by their brothers on the autumn journey southward.

While the monarch is undoubtedly the strongest of the migrants, it is by no means the only butterfly which spends its lifetime in two climates. The cosmopolite and red admiral leave England every autumn for more comfortable homes on the continent. The cabbage butterfly has, unfortunately, made of itself a world-wide pest through its powers of extended flight. Several of the yellow butterflies follow the Atlantic coast and Mississippi Valley north and south each spring and fall.

But the monarch is the sturdiest of them all. Its endurance has carried it hundreds, even thousands of miles across the seas until it has spread to Australia, the Philippines and intervening isles, to Great Britain and to the Cape Verde Islands.

Long of life and hardy, the monarch defies our loosely making the characterization of butterflies as ephemeral.

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MALVASTRUM COCCINEUM

BETTER KNOWN AS THE FALSE MALLOW

BY FANNIE M. HEATH

EVEN the swiftly passing motorist is attracted, when out in the "Plains Country" in June and July, by the little hollyhock-shaped blossoms that grow by the roadside and seem to be brighter-hued the dryer the location and the poorer the soil. The deep salmon or bright scarlet-orange flowers refuse to permit one to pass without bestowing on them at least a glance.

This flower, called by botanists the false mallow and having a variety of popular names ranging from wild geranium or wild portulacca through creeping hollyhock to flame weed, is listed in the books as *Malvastrum coccineum*. It has three- or five-parted, gray-green leaves that form clusters on the top of four- to six-inch stems, and is one of the most popular wild flowers both in the gardens of the East and across the Atlantic in England.

It seems to revel in heat and dryness. If a handful of budded stems is gathered and placed in the sun the flowers will continue to open for several days even in hot, dry weather. Although it is slow to adapt itself to a new place, it is very permanent when once established and is a real gem for the rock garden, especially where allowed to fight its way among gravel and stones. The blossoming season lasts several weeks and the foliage is pleasing throughout the year. The plant is very hardy.

A strong tea made from the leaves is good for insect bites and will give almost instant and permanent relief from poison ivy when applied as a wash or a poultice.

Sorcerers of some of the plains tribes chewed the leaves of the false mallow and rubbed their hands and arms with the mucilaginous paste, thereby rendering them insensible to heat, so they were able to pick up hot objects or take meat from boiling water to the amazement of the spectators. The Indians called the plant Heyoka pezhuta, meaning "Dakota medicine".

The plant grows from Minnesota to Texas and west of these states. Its distinctive color prevents its being mistaken for any other plant by the casual observer.

THE PLANT OF BRILLIANT FLOWERS AND MANY NAMES
One cannot pass its scarlet-orange blooms without noticing them. It is variously called false mallow, wild geranium, flame weed and creeping hollyhock

BLINKEY

A GARTER SNAKE PET

BY MARY V. LOVERIDGE

WHAT BLINKEY LOOKS LIKE

We didn't have an intimate picture of Blinkey but Brian is holding his pet and the picture above is enough to show how attractive he is

BRIAN'S pet was given to him by a friend who had found it, half-frozen and too lethargic to seek shelter, one dull December day. No dog or cat could have been more entertaining. Brian used to come down to breakfast with Blinkey up his sleeve; he still exhibits it to his friends and invents games to play with it; he has made it his constant companion. Yet Blinkey is only a garter snake.

Brian named it Blinkey because he thought that he once saw it blink. Of course this was shocking for a naturalist's son, because everyone knows snakes cannot move their eyelids. But Blinkey he remained. Throughout the first winter it was kept in a glass case filled with sphagnum moss in which it formed tunnels in every direction. At one end of the case there was a jar of water and occasionally the snake would submerge its head and drink.

In mid-winter the feeding problem was difficult, because, the ground being frozen, no worms could be obtained, except during thaws. Ordinarily the snake would have hibernated, but in the house, as the playmate of a small boy, it was more or less active all of the time. When the ground finally warmed up in April, Blinkey's first meal consisted of twenty-two large worms and a fat grub, and when it finished its body was so distended that the skin could be seen between the scales. The feeding in summer was easily handled, as worms, tadpoles and frogs were plentiful.

When Brian was confined to bed one time with a bad cold he begged to have the snake with him, and its activities kept him amused and interested for hours. It twisted in and out of the bars at the foot of the bed, and wended its way along the top narrow bar, causing Brian to sit up and cheer at its acrobatic prowess. The snake, not being possessed of ears, took no notice. Later, when I went to Brian's room and asked where Blinkey was, I discovered that the tired performer had neatly coiled up close to my son's little toes, in bed! Antidote for a cold!

Another form of entertainment that highly amused Brian was the attempts of the garter snake to climb the stairs. After getting its head on a step, Blinkey would try to draw its body up, and just as it was about to succeed, it would slip sideways and lose its grip. Now and then it was successful, but usually Brian had to help it.

One time a friend of Brian's came to see him, and he took her to his room to admire the snake. Going upstairs later, I found that they had invented a new game with Blinkey. Each stationed himself on one side of a shut door, and alternately put the snake's head under it. The creature immediately would wriggle through, whereupon the other one would turn it around and let it wriggle back again. Much merriment was provoked by the sport, although perhaps the garter snake did not join in.

The first time Blinkey cast its skin there was great excitement. I happened to notice the event first, and called Brian just as the sloughed skin had been drawn back over the head. Blinkey wove its way for about five minutes in and out of the moss of its home to get rid of the old covering, then dove into its drinking dish, where it stayed, with just its head out, for about a half an hour. When it emerged the yellow and black stripes looked very pretty and distinct as is the case when a garter snake has recently sloughed, and the newly-formed scales appear in all their freshness and luster.

THE SAPPHIRE OF SEPTEMBER

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BY AUGUST POHNDORF, JR.

This is the ninth in the series of articles on birthstones, this one on a stone with a proud past. Next month we have the opal and the tourmaline.

WHEN the poet sings of "sapphire skies," it will not be amiss to ask what color he means, for sapphire, the birthstone of September, may be golden, yellow, pink, brown, black, gray, blue, green or violet, and occasionally has no color at all! The term, to the lapidary, means any corundum except the ruby, and includes the Oriental amethyst, the Oriental peridot and the Oriental topaz as well as the brilliant, lustrous blue stone to which people through the ages have given the title "sapphire."

Corundum is a combination of oxygen and aluminium, created in the volcanic fires of the dawn of time. Like Cleopatra, "age cannot wither nor custom stale" its infinite variety, and yet the wide range of colors is caused merely by minute impurities which crept into the atomic structure of the stone. It is one of the marvels of the mineral kingdom that a crystal occasionally is blue on one half the length of the crystal and yellow on the other half; or that sometimes the blue and red alternate in thin stripes to impart to the crystal a purplish plum color. And it is equally marvellous that some stones, viewed through the length of the crystal, appear blue although a side view discloses them as a reddish plum shade or without color at all! How or why these phenomena occur is still unexplained, although it is known that the oxides of chromium, titanium and iron will produce stones colored red, blue, yellow and brown. In any event, the result of them are either rubies or sapphires, and the beauty-loving world is far richer for their creation.

SOME JEWELRY MADE WITH SAPPHIRES
For such purposes it is a gem of rare beauty. The inset gives an idea of size

Epiphanes, a writer of the Sixteenth Century, has written that the vision Moses saw on the Mount was within the crystal of a sapphire, and that the original Tables of the Law were made of the same material. Whether his account is authentic or not, it is known that the Greeks had dedicated the gem to Apollo, the god of prophecy, long before the Christian era, and, when consulting this deity's oracle at Delphi, inquirers wore this jewel to secure quick and favorable answers to their petitions.

The Middle Ages placed as much reliance in the stone as did the Golden Age, and even the Churchmen believed in its powers. Bartholomaeus Angelicus, an English Franciscan monk, writing in Latin about 1260, whose words were translated by R. Steele in 1905, gave a hint for snake-fighters: "The sapphire is a precious stone . . . most apt and able to fingers of kings. Its virtue is contrary to venom and quencheth it every deal. And if thou put an addercop in a box, and hold a very sapphire of Ind at the mouth of the box any while, by virtue thereof the addercop is overcome and dieth, as it were suddenly. And this same I have seen proved oft in many and divers places." At this same time it was supposed to bestow strength and energy if placed over the heart, and to cure fever and stop hemorrhage. Among its additional powers was the preservation of eyesight, evil and impure thoughts and chastity. Powdered, and taken internally with milk, it was considered a sovereign remedy for pestilence, poison, fever and hysteria. Galen, one of the fathers of modern medicine, used it to expel "hot humours of the body," how successfully we can only guess.

Sapphires occur in such igneous rocks as granites, syenites, rhyolites especially in rocks rich in aluminium, and also in metamorphosed strata associated with tourmaline, spinel and garnets. In the natural state they may be either double pyramidal hexagons or six-sided, barrel-shaped crystals or water-rolled, rounded pebbles.

These gems are, next to the diamond, the hardest of all natural substances, and are given a rank of 9 on the Mohs Scale. Their true brilliance does not show to advantage, because they lack that fine spectral color-play called "fire" to considerable degree. Some stones are highly transparent; others are opaque. The luster is adamantine, and twin images, caused by double refraction, always play from the surface. The crystals cleave cleanly and smoothly parallel to the common pyramidal base plane. They are also found to be infusible and are not affected by acids.

Important sapphire mines, where various types of underground workings, diggings, hydraulic sluices and surface works are undertaken to bring these brilliant gems into circulation, are located in the provinces of Battamburg and Chantibun in Siam; Burma, India, where the sapphire is found with the ruby; the gem gravels of Ceylon; Cashmere; the Chinab Valley of the Himalayas; Queensland; and in the United States. Black sapphires range in price upwards from three dollars and fifty cents; the Orientals are ten dollars and up, while the blues are valued between sixty dollars for small ones and as much as five hundred dollars. The rubies, which are red sapphires, may run into the thousands. Those all born in September, whether rich or poor, may possess his birthstone.

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SOME GENIAL FEATHERED FRIENDS BY CHARLES D. HOLLAND

LIFE seemed joyous and full of bright promise to these young screech-owls, who were first discovered comfortably nested in a hollow limb of a large maple tree, just off the highway two miles south of Bel Air, Maryland. A peep over the parapet of their ordinarily secure shelter, and they could see rolling, partly-wooded hills, brooks, and barns, offering prospects of much happy foraging. The balmy summer air of the Maryland uplands was salubrious; and with a fond mother who now provided their every need, there was nothing more that could be desired. But, alas, their inquiring but friendly human visitors were not as careful as they might have been, the decayed limb gave way.

The owls were stoic, however, as little owls are expected to be, and calmly accepted a deep crotch in the same tree, formed by the juncture of several big limbs, as a substitute dwelling-place. Here the mother owl continued to care for them until, after a while, they were able to strike out into the world for themselves.

When, shortly after the accident to their home, the camera-man sought their picture, they made no objection to posing. They even seemed genial in their willingness to be accommodating. At first they watched with interest the process of the focussing, but, as the photograph shows, they manifested at the same time a rather personal indifference toward the publicity they got.

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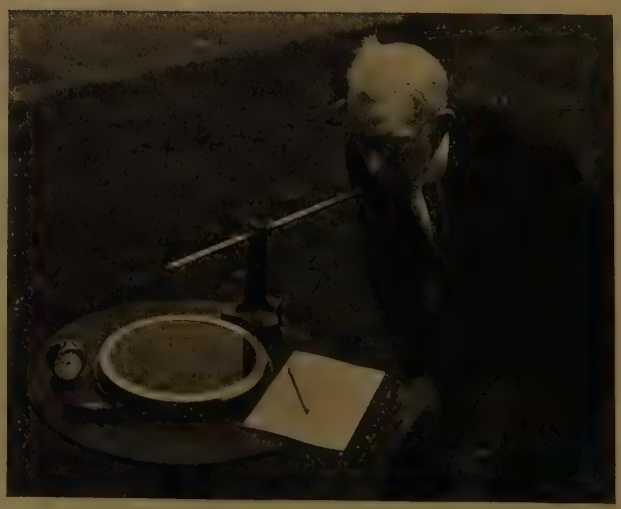
CLOUDS MEASURE WIND SPEED

BY JAMES N. MILLER

MEN have discovered a new use for the clouds that float in the blue—as wind guages. Aviators always like to know the speed of the wind at various levels. A cloud travels with the wind, and makes visible the speed of the wind at a certain altitude.

The U. S. Weather Bureau has devised apparatus by which observers can determine how fast a cloud is moving. They sight the clouds in a black mirror mounted in a frame graduated in degrees. By observing the movement of the image of a cloud as reflected by the mirror for a certain period of time, they get one factor for a computation. The other factor is the height of the cloud above the earth. The observer determines the distance from the earth to the cloud by releasing a standard "ceiling" balloon, and watching it until it disappears into a cloud. These balloons are inflated to a certain pressure, and the observer knows how rapidly such a balloon rises. By timing it from the moment of release until it enters the cloud, it is easy to make a close estimate of the height of the balloon. With this as a second factor the observer computes the rate at which the cloud is moving and can tell the pilot whether he will fly against a headwind or have the benefit of a tailwind before he takes off to find out for himself.



CHECKING UP ON THE CLOUDS
J. H. Jones of the Weather Bureau watches the clouds in the nephoscope

A FOREST FOR WASHINGTON

SHENANDOAH NATIONAL FOREST RENAMED FOR FIRST PRESIDENT

BY RUSSELL T. EDWARDS

IN HONOR of George Washington, the bicentennial of whose birth thousands of tree planters are marking this year, the Shenandoah National Forest has been renamed by President Hoover the George Washington National Forest. This is the second National Forest to be named for a president of the United States this year. The Colorado National Forest was recently renamed the Roosevelt. Washington, like Roosevelt, was greatly interested in the land, the forests, navigation, conservation and outdoor life. Other National Forests named for presidents are the Lincoln in New Mexico and the Cleveland in California.

Arthur M. Hyde, Secretary of Agriculture, upon recommendation of R. Y. Stuart, Chief of the Forest Service, chose the forest in Virginia and West Virginia as most fitting to be named as a perpetual memorial to the Father of Our Country. It is in a region frequently traversed and in part surveyed by George Washington. The George Washington National Forest is the largest in Virginia. It stretches for nearly 100 miles along the summit and slopes of the Shenandoah Mountains and for a shorter distance along the Massanutten Range. Its gross area is 802,700 acres, more than half of which has already been acquired by the Government. The land now supports extensive stands of growing and mature timber. It has great value for watershed protection and recreational purposes. Numerous cities and towns draw their water supplies from its watersheds and it constitutes an important part of the drainage area of the Shenandoah and Potomac Rivers. Lying close to Washington and other large cities, its camping and outing facilities are being developed.

By this bicentennial year announcement the thought of new thousands will be turned toward the importance of timber conservation. There is no question but the importance of putting idle land to work growing trees will

THEY PUT TREES ON THOSE HILLS

These young Americans of Avoca, N. Y., High School make their memorial to George Washington ten thousand five hundred trees placed in a watershed project

THE BIRDS SAY THANK YOU WITH SONGS

With a Washington memorial tree in the center Mr. and Mrs. Joseph L. Sturtevant of South Sudbury, Mass., beautified a spot which the birds quickly made their home

be more in the public mind than ever this bicentennial year. And it would seem that is exactly what George Washington would have liked. He knew the forests and their importance. He worked and lived in them.

In the meantime the tree planting army, now made up of thousands of individuals and organizations, is going right along with plans for increased registrations this Fall on the national honor roll of the American Tree Association. There is watershed planting on a big scale and other plantings that bring beauty and service to community effort. One fine example of looking to the future is the work of the Avoca, N. Y., High School pupils. These young Americans have planted 10,500 trees with the help of the Exchange Club and the Village Board and G. J. Carter and F. J. Ryan of the public schools report the program of watershed planting will be continued for several years. Other schools in Steuben County are also to take up the work. Here is citizenship-making of the finest character coupled with a project well worth while.

NOW A BEAUTY SPOT FOR COMMUNITY

Spencer, Indiana, turns a barren place into a park when Mrs. T. Guy Pierson (center) calls on the town to honor Washington

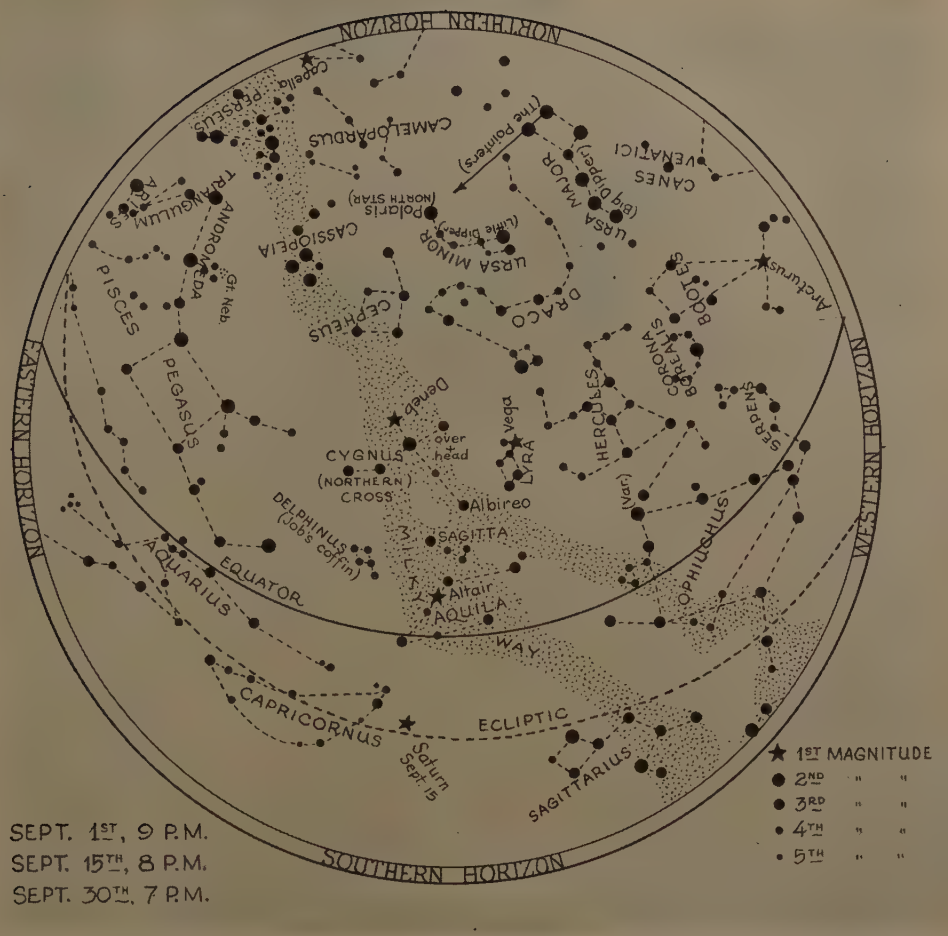
As to community beautification programs they are almost countless. Spencer, Indiana, offers a good example of what can be done when a community gets together to honor Washington. William Herschell, the poet laureate of Indiana was born in the town and he had a part in the program as did Richard Lieber of the Department of Conservation. "Bill", as he is known to thousands, not only made an address but he painted the iron fence his father wrought by hand sixty years before. Mrs. T. Guy Pierson looked after the landscape features. Every unit in the village is represented by some tree planting or some piece of park furniture. The tree planters are all registered on the national honor roll of the American Tree Association. Now children play in a beauty spot from which not so long ago people turned away.

A graceful Washington Memorial tree planting is that at South Sudbury, Mass. At this place an open field is now a beauty spot thanks to Mr. and Mrs. Joseph L. Sturtevant. A Washington cherry tree stands in the center of the plan, and bicentennial trees have been planted along two sides, while there is a background of blue morning glories in memory of the Lindbergh baby. The birds have been early in recognizing that this spot is just the place for them and several varieties have made this Washington bicentennial memorial their headquarters.

Organizations find in bicentennial tree planting that varied projects may be carried out. The Ohio Federation of Women's Clubs will register one million trees before the end of the year. An unique program has just been completed by the Daughters of the American Revolution of South Carolina. In this project every chapter has registered following the planting of trees at the Tamassee D. A. R. School during the state conference there. Mrs. John Carroll Coulter, the state regent, heads the list reported by Miss Lola Wilson, the state treasurer. In the District of Columbia, the D. A. R. has planted a memorial grove on the river drive and properly marked the trees. From Pennsylvania there is the registration of the Donegal Chapter and the Witness Tree Chapter. The dedication was at the historic Donegal Presbyterian Church that was founded prior to 1721. At Bristol the Friends First Day School has planted two Washington memorial trees on the lawn of a meeting house built in 1709. The house was used as a hospital during the Revolution, according to the report of Lillie M. Rue.

A mile of trees to commemorate the bicentennial was one of the forms the tree planting in Connecticut has taken. Robert M. Ross of the Connecticut Forest and Park Association has just registered the tree planters and among those on the list are Mr. and Mrs. Herbert L. Satterlee, Mrs. A. E. Roosevelt, Mrs. Irving Fisher, Horace D. Taft, the Norwich College Club, Norwalk Garden Club, the Litchfield School, Connecticut Society of Mayflower Descendants.

Tree plantings registered on the honor roll of the American Tree Association now approach the twenty million mark and there is every evidence, says Charles Lathrop Pack, the president, that the registrations will go beyond that mark before the end of 1932. From every section of the country he is receiving requests for tree planting suggestions and registration blanks in anticipation of the Fall tree planting season for Washington.



To use this map hold it before you in a vertical position and turn it until the direction of the compass that you wish to face is at the bottom. Then below the center of the map, which is the point overhead, will be seen the constellations visible in that part of the heavens. It will not be necessary to turn the map if the direction faced is south

OUR SUN, THE NEAREST STAR

BY ISABEL M. LEWIS

COUNTLESS stars shine above our heads at night. We know that these are suns and that many of them are far more brilliant than our own sun. But they appear only as tiny points of light because of the inconceivably great distance that lies between them and the earth. By day the light of all stars above the horizon is blotted out by the dazzling brilliancy of the nearest of all stars, the sun. From a study of the sun by means of the spectroscope and other instruments of modern astronomical research we have learned a great deal, not only about its nature, but about other suns as well.

Our sun, we know, is a glowing mass of gases of many elements existing in a free state. No chemical compounds are to be found in the sun excepting a few refractory oxides and hydrides in the comparatively cool sunspot regions, and, in addition, elsewhere, some compound of nitrogen and carbon, probably cyanogen, some compound of nitrogen and hydrogen, and hydroxyl. Among the elements that are known to exist in abundance in the sun are hydrogen, helium, sodium, magnesium, calcium and iron. There are many others and it is believed that the order of their abundance is about the same as it is in the earth's crust. Forty-one of the known chemical elements have not been found in the solar spectrum, but it does not follow that they do not exist in the sun because it is only the surface of the sun and its upper atmosphere that can be analysed by means of the spectroscope. There is no good reason to assume that any known element is absent from the sun and forty-nine elements are known to exist there.

This glowing mass of incandescent gases which we call the sun is equal in bulk to one million, three hundred thousand earths. It rotates slowly on its axis in about twenty-four and one half days at its equator, and in about one day longer in latitudes 35 degrees north and south of its equator. This was determined from observations of many sunspots, and other independent observations also showed that the sun rotates most rapidly at the equator and most slowly near its poles. The rotation period near the poles is about thirty-four days.

The visible surface of the sun is known as the photosphere and it is here that sunspots occur. Sunspots are solar storms, or cyclones, and they consist of a penumbra and a dark central umbra, which may vary in size from about 500 miles in a very small spot to 50,000 miles in the largest. The surrounding penumbra of the spot is a much larger region and it is composed of converging filaments or streaks directed toward the umbra as if they were ascending columns of gases that are being drawn into a vortex. The penumbra surrounding a spot is occasionally 150,000 miles in diameter. Sometimes sunspots are large enough to be seen with the naked eye at sunset or through a fog. They usually occur in groups, and strong magnetic fields exist in sunspot regions. It has been found that there is a close connection between the number of sunspots and variations in terrestrial magnetism. Also it has been discovered that the mean surface air temperature of the earth is lower by about one degree Centigrade when sunspots are most frequent. Sunspots occur in cycles of about eleven years. During a maximum sunspot period the surface of the sun is never free from spots.

During the minimum weeks and months may pass without the appearance of a single spot. Although the average length of the sunspot cycle is about eleven years the period is very irregular and may vary from seven to seventeen years. Spots of a new cycle first appear as small spots 25 or 30 degrees north and south of the equator while spots of the preceding cycle are dying out close to the equator. As the solar activity increases new spots appear in increasing numbers and the zone of spottedness widens toward the equator. Shortly before the maximum new spots cease forming in high latitudes, two great zones of spottedness exist north and south of the equator with a narrow equatorial strip in which no spots are ever seen. As the maximum passes the width of the zones shrink until the last traces of the disturbance in that cycle die out within a few degrees of the equator as spots of the new cycle appear near latitudes 35 degrees north and south.

The cause of sunspot cycles is not known. It is believed, however, that the cause exists within the sun itself. Their appearance is one sign of some deep-seated disturbance within the sun, and their outburst probably relieves some internal strain.

The photosphere, or sun's visible surface, has a mottled appearance or what has been called a rice-grain structure. Herschel likened it to "snowflakes on gray cloth". The brilliant rice grains or nodules are from 400 to 600 miles across. In the neighborhood of sunspots they are drawn out into filaments as if they might be extremely hot rising currents of gas drawn longitudinally into the whirling solar vortex existing in the center of the spot. The average temperature of the visible surface of the sun is about 6,000 degrees Centigrade. In sunspots the temperature is about 2,000 degrees lower and this explains why sunspots appear dark. It is only by contrast with their much hotter surroundings. Take away their background and they would shine brilliantly. The inner temperature of the sun is of course much greater than that of its surface, increasing with depth. It is estimated that at the center of the sun it must be at least ten million degrees.

Directly above the photosphere is the reversing layer extending to a height of a few hundred miles. It is so called because at the beginning and ending of a total eclipse the dark lines of the solar spectrum which originate in this layer are reversed to brilliant lines, momentarily to form the flash spectrum. This is made possible by the covering of the photosphere by the advancing moon. A second more and the reversing layer is also hidden by the moon. The reversing layer is composed of the vapors of many well-known terrestrial elements. It blends gradually with the chromosphere above, which is composed largely of the lighter gases, hydrogen and helium. The chromosphere generally has a rosy tinge due to the presence of hydrogen gas in abundance and is conspicuous during a total solar eclipse, often appearing brilliantly scarlet. It rises to a height of several thousand miles above the photosphere and reversing layer.

The solar prominences, known as eruptive or quiescent, are flames, or clouds, of incandescent hydrogen, helium and calcium. The eruptive kind appear only in spot zones and usually in connection with active spots. They are brilliant and change in form with great rapidity. They burst forth with velocities that at times exceed 300 miles a second, and occasionally they attain heights of several hundred thousand miles above the surface of the sun. They are often a spectacular feature of a total solar eclipse. When of average size they appear during totality as small brilliant red points glowing like rubies around the edge of the eclipsed sun. The quiescent prominences appear as great clouds often thousands of miles in extent resting upon the chromosphere as a base and lasting for days, sometimes, with little change of form. It is believed they are held up above the solar surface by radiation pressure. Unlike the eruptive type they are not confined to the sunspot zones. They are not as brilliant as the eruptive kind but consist also of hydrogen, helium and calcium vapors. They are often seen during a total solar eclipse rising above the chromosphere, and assuming strange forms.

Of all the solar surroundings the outer gaseous envelope known as the corona is the most beautiful and interesting and also the most fascinating and elusive as it appears only during the total phase of a solar eclipse. Its brightness is only about one half that of full moon and the glaring light of the sun effectually conceals it at all other times. The corona at times extends to distances of several million miles from the sun. In form and size it varies with the sunspot cycle. Its brightness falls off rapidly with distance from the sun giving rise to a clear distinction between an outer and inner corona. The latter appears as a bright ring of a yellowish tinge, about 100,000 miles in width, contrasting beautifully with the vivid, red prominences. The former is pearly white in color and consists of streamers, or rays, which are curved and interlaced and appear at times to take the form of mag-

netic lines of force. Much of the radiation of the corona appears to be sunlight, reflected or scattered in passing through the corona. The remaining light is emitted by the corona and due to some gaseous element, or elements. The most conspicuous spectral line is in the green but thirty coronal lines have been observed that have not been reproduced in any laboratory. It has been supposed that they are due to a hypothetical element "coronium," but it is now suspected that they arise from some known substance electrically excited or changed in some way by the peculiar conditions that exist in this outer envelope of the sun. The total period of time which has been afforded so far to astronomers to study the corona during the total phases of eclipses has amounted to less than one hour since photography has been introduced. It is to photograph and study the corona, chiefly, that astronomers are anxious to observe total eclipses of the sun.

On September 23 at 1:16 A.M. Eastern Standard Time the sun will cross the equator going south and autumn will begin in the northern hemisphere and spring in the southern hemisphere.

There will also be a partial eclipse of the moon on September 14. Its magnitude will be ninety-eight hundredths, or nearly total. It will be visible in Europe, Asia and Africa and the ending will be visible in the northeastern part of North America, South America and the Atlantic Ocean. At Washington the moon will rise shortly before it leaves the penumbral shadow of the earth. The eclipse will be scarcely visible in the eastern states and not at all farther west. Only the end of the penumbral phase can be seen and in this country nothing whatever of the immersion of the moon in the earth's umbral shadow.

Saturn will be the only planet visible in the evening sky this month. It is now in Capricornus and is nearly due south about eight P.M. on September 15. It is yellowish in color and a little brighter than Altair, in Aquila, which is now not far distant from Saturn to the north.

Venus is now a fine Morning Star as it reaches its greatest elongation west on September 7. Mercury is also a Morning Star about the same time. It will be at its greatest western elongation on the third and is then most favorably placed for morning observation. It may be seen low in the east in the morning twilight.

Mars rises about one A.M. on September 15 and passes from Gemini into Cancer this month. Jupiter is now in the eastern morning sky but is still too close to the sun to be seen to advantage early in September. It is in the constellation of Leo.

In the evening sky Cygnus, and Vega in Lyra, are now near the zenith. Hercules and Corona are high in the western sky and Pegasus and Andromeda are conspicuous in the east. Antares in Scorpio is low in the southwest as the first magnitude star, Fomalhaut, in the Southern Fish, comes into view in the southeast. Aquarius, The Water-bearer and Capricornus, the Sea-goat, now fill most of the southeastern sky directly above the horizon, while Sagittarius, with its little inverted milk dipper, is particularly prominent in the southwest close to the horizon.

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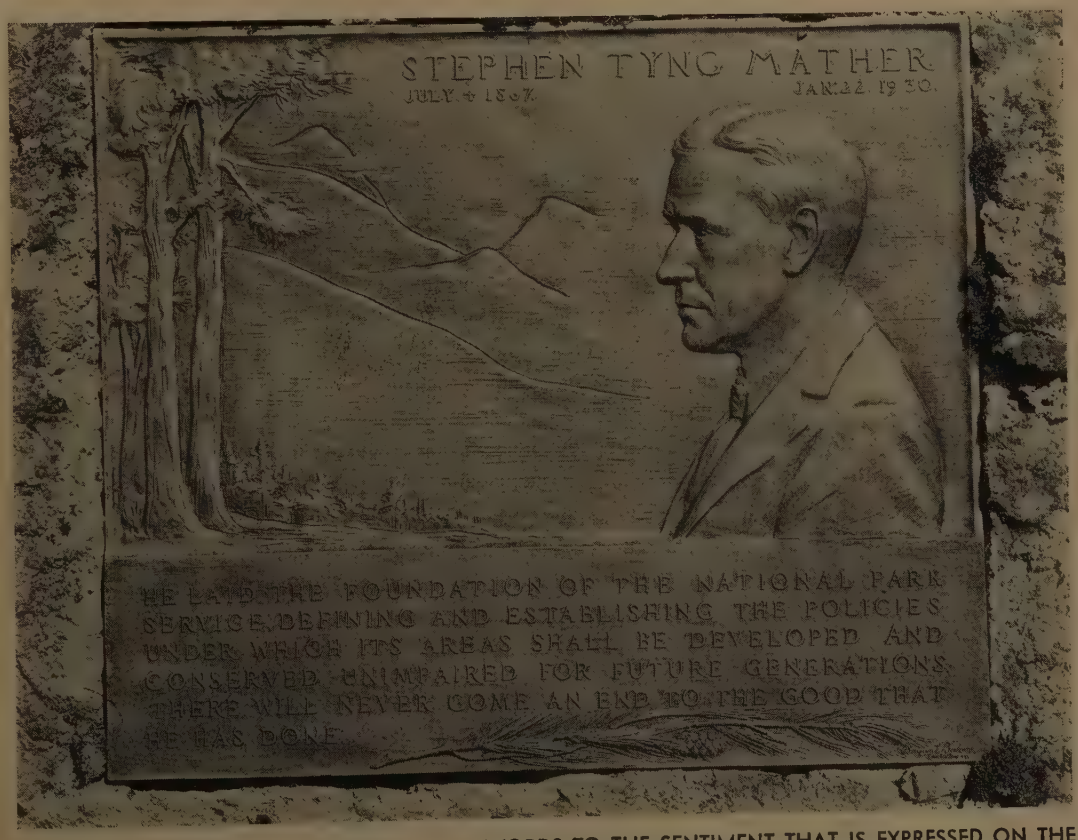
STEPHEN TYNG MATHER
JULY 4 1867
JAN. 22 1930
HE LAID THE FOUNDATION OF THE NATIONAL PARK
SERVICE, DEFINING AND ESTABLISHING THE POLICIES
UNDER WHICH ITS AREAS SHALL BE DEVELOPED AND
CONSERVED UNIMPAIRED FOR FUTURE GENERATIONS.
THERE WILL NEVER COME AN END TO THE GOOD THAT
HE HAS DONE

IT WOULD BE FUTILE TO ATTEMPT TO ADD WORDS TO THE SENTIMENT THAT IS EXPRESSED ON THE STEPHEN T. MATHER PLAQUE SET IN A HUGE BOULDER AT MADISON JUNCTION MUSEUM, YELLOWSTONE NATIONAL PARK, AND DEDICATED ON JULY 4, 1932, ON THE SIXTY-FIFTH ANNIVERSARY OF HIS BIRTH.

NATURE RAMBLES WITH UNCLE DICK

A DEPARTMENT FOR THE YOUNG FOLKS

Bill Finley is the Field Naturalist and Wild Life Photographer of Nature Magazine's staff. He has had many wild pets, whose lives he has studied and of whom he has taken pictures. In this and coming issues of Nature Magazine, Bill will tell Uncle Dick about these pets and he will pass the story on to you.

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THE STORY OF DON Q

THERE was a whirr of wings; a flash of brown, white and lavender. Peck! Cluck! Peck! Cluck! What seemed to be a very angry bird pecked at my brown shoes. His top knot bobbed. He circled, clucking and darting. I leaned over to look at the one-sided battle between bird and shoes. What a proud, busy and valiant bird he was!

"So that is Don Q?" I said to Bill.

"Yes," Bill nodded, "that is Don Q. There may be many California quails. But there is only one Don Q."

"Tell me about him," I urged. To tell the truth I had heard some of the strange story of this bird. But I wanted Bill to tell me more.

"Well," Bill drawled, "Don Q is one of our pets with which we really started from the beginning. At least he had only one day of this world when he joined the Finley family. What had happened I don't know, but Don Q and his baby brother were lost from their mother. We found them in the woods, a scared little pair. They were covered with soft down but even at one day they could run fast. We finally caught them. We tried to find their nest and waited to hear their mother's call. None came. A night alone in the woods would have been the last for these babies. So home they came to a warm nest in a box with a screen on top.

"We put out a little box of fresh dirt, some water and crumbled hard boiled egg. But the little fellows huddled in their woolly nest and looked cold. An electric reading lamp fixed that. For a bit they cuddled by this bright mother. Then they began to peep. Soon they explored. They found a yellow spot on the floor good to eat. They ate several more. Then they went back to their warm foster mother.

"Day by day the pair grew. They became mottled-brown and ragged with feathers. They had exciting times with worms and bugs, with strawberries for dessert. One day both slipped through the door and only one was found. So Don Q started a new life. It was hard at first. He missed his little brother. He called for him in vain. We talked to him quietly. Finally he climbed into a pair of cupped hands and settled down to sleep. With that act he left the wild world behind.

DON Q GREW UP TO BE A LOVELY BIRD WITH A TOP KNOT OF THE FINEST GRACE

"Don Q grew. He lost his ragged coat. His top knot grew, too. He became a lovely bird. He had the run of the house. He explored everywhere. The typewriter, the desk, everything was studied. He tried to pick up commas and periods from typewritten stories. He rode back and forth on the typewriter carriage, enjoying the clink of the bell at the end of each trip."

"He took a longer trip, too, didn't he?" I asked.

"Yes, indeed. He travelled right across the United States in a Pullman drawing room and spent a winter in Princeton, New Jersey. There he met a collie dog and became his playmate. He met

new people and saw new things. He found beautiful brown riding boots that he could fight as long as he desired. He had a great winter. In the spring he travelled back to his western home."

While we were talking the quail had tired of my shoes and gone back to roost on the curtain rod above the high window.

"You know," Bill said, "Don wouldn't know what to do in the wild now. He only knows our ways. In the woods his trust would be his undoing. He will always be a Finley, I guess."

DON Q LOVES TO HUNT FOR COMMAS BUT IS UNHAPPY WHEN HE FINDS THAT THEY ARE NOT GOOD TO EAT

There was another whirr of wings. Down came Don Q. He preened his feathers and looked brightly about him. Then he walked calmly into his cage, the door of which always stood open.

"Guess it's bedtime," Bill said.

"I believe Don is right," I said, looking at my watch.

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BROADCASTING IN ANIMAL TOWN

STATION A. C. (ARCTIC CIRCLE) YAKUTSK, SIBERIA

CHIMPANZEE Chim, Announcer.

Those present with Chim, Mr. Rabbit and Miss Frog.

Samoyede, Siberian Dog, Radio Artist. "This is Sam talking. The Samoyede dog is said to be the oldest breed of dogs in the world. For many centuries, we have lived in the tundra country in northern Russia and Siberia. Now, people are beginning to find out what good pets we are. Up in our far northern home, we live with the family and help round up the reindeer.

"We are not related to the Eskimo dogs and the Husky, but we are just as swift and reliable sled dogs to travel over the frozen wastes. We have two sets of fur. One, next to the body, is short and thick and water proof. We shed this in summer. The other is our outer, longer coat. This long white fur, when made into yarn, makes many different kinds of knitted articles that look as well after they are washed as they did before.

"My time is up, but before I close, I want to say how fine it is that the radio is helping us all to get better acquainted. Because my fur is white and yours some other color doesn't make any difference. I listen in every night, to find out who's on the air."

CHIM, ANNOUNCING: "FIND SAM, MISS ALLIGATOR AND MRS. CAMEL"

THE ROBBER FLY

BY ROBERT SPARKS WALKER

SON and I were taking a walk. Our way led along a path across a sunny field. Suddenly Son stopped. "Look, Dad," he said, and pointed to our feet. There was a robber fly laying her eggs in the dry dirt. We bent over to watch her.

"Rub her back with your finger, Dad," Son said.

"Oh, she is too wild," I replied.

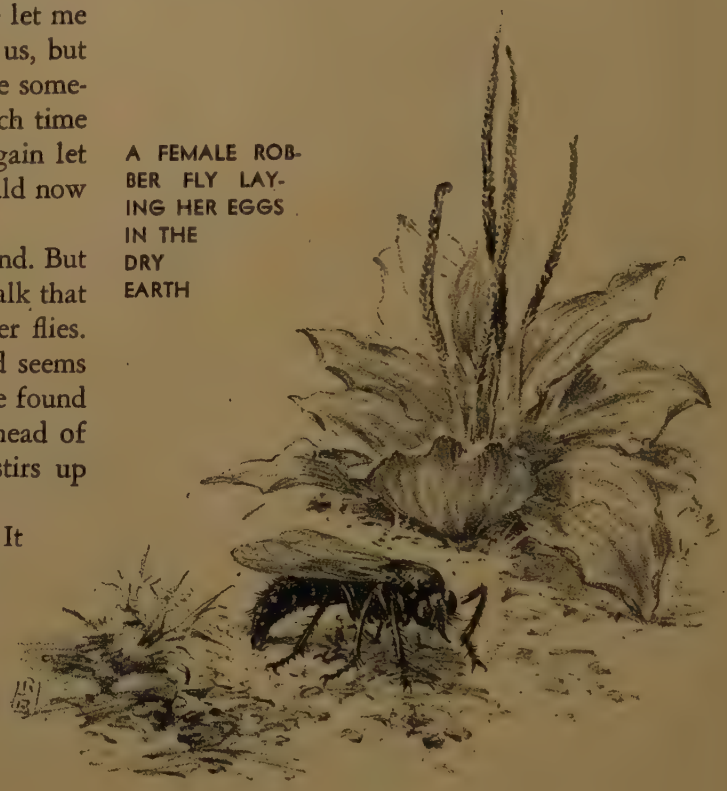
But Son insisted. So I slipped my right hand slowly up to her. And, to my surprise, she let me rub her back. Then she flew on ahead of us, but only a few feet at a time. She sounded like someone picking a violin string as she flew. Each time she would light she would face us and again let me rub her back. While I did this she would now and then dart at a fly that passed her.

We saw no more of this little insect friend. But her actions made me wonder. Since that walk that day I have made friends with other robber flies. And I have found that this particular kind seems to like to have its back rubbed. Also I have found that the reason it flies only a few feet ahead of one is because it can catch insects one stirs up while walking that much more easily.

This kind of robber fly is very common. It is a good friend, too, because it makes its meals off insects that injure the flowers and vegetables in the garden. The eggs that the fly lays in the soil hatch into worms. These worms live on decaying vegetable matter and other little worms. Finally they are changed into the useful little fly.

One of these I got most friendly with not only liked to have its back rubbed but its chest also. Once I was rubbing it that way and must have tickled its back. It reached up one of its long legs and tried to push my finger away.

This meeting with the robber fly showed me how many interesting friends one may find in the world of insects. We should all always be on the lookout for them.



A FEMALE ROBBER FLY LAYING HER EGGS IN THE DRY EARTH

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ANSWERS TO AUGUST QUESTIONS

1. The elf owl.
2. In the sahuaro cactus in the Southwest.
3. Yes.
4. Certain beetles bore holes in lead pipe.
5. A planet.
6. No. It is a superstition that a snake makes itself into a hoop to escape.
7. Bloodroot, trillium, lady's slipper, fringed gentian, showy orchis.
8. Pearls are the result of an attempt of a mollusk to seal up an enemy or irritating substance with a layer of what is called nacre.
9. Yes. It is white in winter; brownish-gray in summer.
10. The weasel that is an ermine when white; or the varying hare that turns white in winter.

SOME MORE QUESTIONS

Copy these off on a piece of paper and find out the answers. Then save the questions and answers until next month's issue of Nature Magazine.

1. What is bird banding?
2. What is the smallest deer in the world?
3. Where does it live?
4. How tall is it?
5. Is there an animal called a sea dog?
6. What bird is called the "thunderpump"?
7. Are all snakes poisonous?
8. Do mammals have two sets of teeth like we do?
9. How much do bear cubs weigh when born?
10. What is Leo, the Lion?

HORNETS BEAT OUT BLUEBIRDS BY LILLIAN S. LOVELAND

At the annual "Town Meeting" in March, 1927, the Town of Dedham, Mass. voted to purchase about seventy acres of diversified woodland for a Town Forest. There were already growing upon the tract many fine cedars, red and white pine and hemlock, as well as hardwood of all kinds. Besides the woodland there were rocky ledges and swampy meadows, and many kinds of shrubs, wild flowers and ferns that grow in such places.

Through the efforts of the Committee in charge of the tract, of which Mr. George A. Phillips is the Chairman, paths were cut through the undergrowth; trimming and thinning was done and 2700 trees of pine, spruce and hemlock were planted. Twenty bird nesting-boxes and several feeding shelves were put up.

One of the nesting-boxes on an oak tree near a sightly spot known as the "East Ledge" was occupied for two seasons by bluebirds, but last summer the occupants were a colony of hornets—*Vespa maculata.*

The bird house did not suit them as it was, and they covered it completely with layer after layer of their silvery gray wood-pulp paper. They used the original entrance, however, and, naturally, the result was a hot corner that was too much for the bluebirds. We are not informed as to this season's developments, but hope that the bluebirds re-occupied their home.

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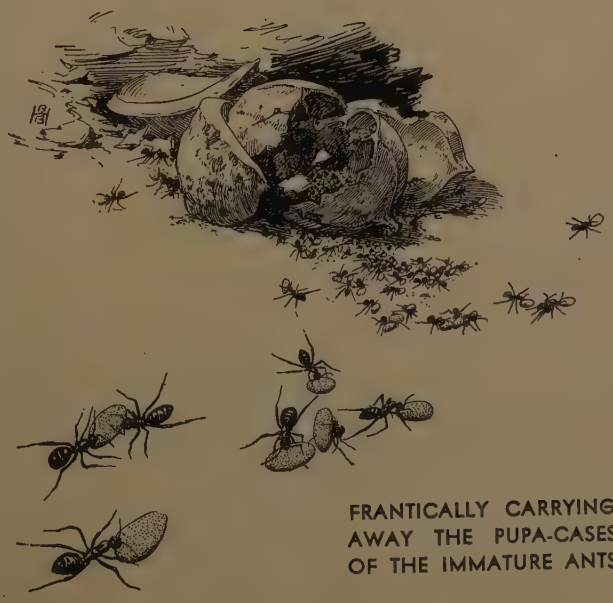
A STORY IN A NUTSHELL

BY EUNICE E. MYERS

One hot morning in early August I went out in the back yard to pick up some hickory-nuts that lay on the ground, hoping to find some of them edible, though I thought they might be under-ripe. There weren't many, twelve or fourteen, so I sat down under the hickory tree to crack them. One after another yielded very poor results, the kernel not being formed in any, but in the last one I found something that proved very interesting, though it was no more edible than the others, for it held a whole little world within its green shell. When I cracked it open a swarm of minute orange-red ants started in alarm and great haste to carry off the pupa-cases of the immature (as children we used to call them "ant eggs"), leaving the queen ant lying in the midst. When all the pupae were removed, four or five workers seized her in as many different places and started hauling and pulling in an unceremonious manner until she finally made an effort and, feebly staggering to her feet, crawled down into a cleft in the nutshell and there lodged. Her helpers evidently decided to give her up and so deserted. Here was a tragedy in miniature; the kingdom disrupted, the queen-mother consigned to an untimely end and the members of the reigning family dispersed all over the drive-way just because I wanted a nut to eat!



FRANTICALLY CARRYING AWAY THE PUPA-CASES OF THE IMMATURE ANTS

They gave me a very interesting half-hour which more than paid me for the lack of kernel, and I hope the law of compensation works in their world too.

Progress or Retrogression?

In the December number, on page 391, we asked ourselves if conservation organizations were being deluded in thinking they were making gains. Frank A. Schilling, whom we quoted in that note, is convinced that they are, and sets forth his reasons in the following letter. His viewpoint, which is the viewpoint of many people, is presented for the thought it should inspire:

Dear Editor:

Those of us who have lived in California for the last 25 years or more, and have witnessed the destruction of our resources, have very good reason to feel exceedingly pessimistic. Not many years ago the entire area from San Pedro to Pasadena was a gigantic wild flower garden. The San Joaquin Valley, likewise, was a vast flower bed—knee deep in June. Both of these areas today—due to an increasing population and destructive picnic parties and others—are destitute of flowers, except cultivated flowers. Our deserts are being rapidly denuded of native plants, and these plants are being sold in our stores today for as low as ten cents each. The northern part of California has been robbed of its lily bulbs—by the tens of thousands they have been collected and sold.

Last spring the State Legislature had before it a bill protecting all plant life—native plants—in California. Conservation clubs stood solidly behind this measure. Private interests began their lobbying and had the bill amended in such a way as to make it worse than useless—further it would have nullified all county conservation measures which had been passed. Fortunately, the measure was defeated.

Not only have the ducks become very scarce, but the shore birds are nearing extinction. As you know, the grizzly bear has disappeared entirely. The State Fish and Game Commission reports that 24,132 deer were killed by licensed hunters last year. The antelope, which once was plentiful, today is all but extinct. The Valley quail is becoming scarcer from year to year.

Subdividers take a keen delight in cutting down every tree standing on a tract, and do not replace them. Our desert areas are rapidly disappearing—they are being commercialized; land is taken up by homesteaders, cleared, and then abandoned, sans shrubs, sans trees, sans everything except desolation.

Our majestic mountains are being cut up into lots; roads marring their beauty are being constructed; beauty spots or rare geological phenomena are being destroyed; hunters and hikers wander at pleasure and fire destroys thousands upon thousands of acres of valuable timber land and chaparral; officials compel property owners to clear their mountain lots of needles, resulting in a deficiency of leaf mold with a consequent destruction of ferns, flowers and other plants.

Twenty years ago it was possible for a fishing boat to obtain a load of fish within a short distance of San Pedro. Today the fisheries construct 125-foot vessels, equipped with expensive refrigeration, and go to Mexican waters for their catch.

Originally there were 1,406,000 acres of redwoods; the area cut over up to January 1st, 1928, was 530,000 acres, approximately 37%. Practically none of this was reforested. Of the total area, only 24,662 acres have so far been set aside as public parks; the balance, I believe, is all in the hands of private individuals and awaiting the lumberman's axe. Truly, this is not a very encouraging picture. These trees are thousands of years old, and when once destroyed can never be replaced. They are a relic of prehistoric days and should be conserved for posterity.

Yours very truly,
FRANK A. SCHILLING.

TO NATURE CLUB MEMBERS

Recently we received a letter from the secretary of a Nature Club who had heard indirectly about a hike planned by another Nature Club in a nearby city. The correspondent asked whether we knew the name and address of the secretary of the other club. We didn't. This brings up a question. There are many Nature Clubs all over the country. Many of them are in close proximity to clubs about which they know nothing. The various groups are constantly planning events of mutual interest and contact between the groups would be of inestimable value in many cases.

Nature Magazine is willing to help if the interest warrants and we would be glad to carry brief notices of the activities of various Nature Clubs if these notices can be gotten to us sufficiently in advance of our publication dates. Owing to space considerations we would have to reserve the right to edit these notes down to small space if this exchange of information grew to considerable proportions. However, this would not be an immediate problem.

So Nature Magazine offers to give space to a department to be known as "Among the Nature Clubs", and to devote as much as a page a month to the work of bringing Nature Clubs into contact, one with another. Just write to the Editors.

To the Editor,
NATURE MAGAZINE

Once more the season has arrived when agriculturists as well as amateur gardeners wage war against cut-worms and other pests of all description. It is no uncommon thing to hear someone say that "a regular army of cut-worms has invaded the garden" and so on. How is it that our country is hit by certain insect pests which hold no terror for European countries? That we are forever struggling and spending millions of dollars to combat insects which are destroying our crops and flower gardens? Some time ago, there appeared in the columns of your valued paper an article in defense of the starling, a bird much abused in America but protected by the European farmer, who recognizes this bird's economic value. Every child living in the rural districts of Europe is taught how to build starling-boxes and to put them up in time for their feathered friends to start their nest building. Another animal which is much despised in America but highly valued in Europe is the mole. Yes, the MOLE! Many a person, who, from early childhood, has been impressed with the erroneous fact that moles are harmful, will scoff at my words. Nevertheless, ask any European farmer or his small children and they will tell you that moles are their best friends. They do, underground, what the birds do above—they destroy the grubs and worms which ruin our crops. They are insectivorous mammals and do not feed on the roots of plants, as assumed by many. The grubs are the ones which destroy the roots, those very worms which the mole is after and eagerly seeks for his food. People set traps for the mole and thus help propagate the insects which devastate the crops. We blame him for throwing up the little mounds of earth along the path of his work—nowhere has the idea of an immaculate lawn become such an obsession as in America—but this is a small offense indeed compared with the services rendered. Cut-worms and the big white grubs of the may-beetle hold no terror for the European farmer, who protects the mole and knows that he will free him from such pests in short order.

Why is it that civilized peoples are further and further removed from Nature's resources, that they forget the natural defensive measures which mean: leave Nature alone? Once Nature's balance is disturbed by man it becomes helpless. Blights, which have already wiped out and are threatening to take further toll among certain species of trees which go on thriving in Europe, like chestnut, and recently, locusts and elms, clearly show that something is wrong, that man's stunted and misdirected instinct has disturbed Nature's most wonderful workings.

Would it not be more beneficent for our own interest to study more closely the important rôle which the animal world around us plays, and to give those protection who help us, rather than to rack our brains how to enforce prohibition?

HILDA H. WULLEN.
Huntington, Long Island.

Louisiana Birds

The Birds of Louisiana, published as Bulletin No. 20 by the Department of Conservation of that State, is one of the series of Louisiana's educational and economic bulletins in paper cover, and has been prepared for free distribution from the office or twenty-five cents mailed. Mr. Stanley C. Arthur, former Director of the Wild Life Division, spent a number of years collecting the data which, combined with numerous small drawings, now fill six hundred interesting pages. Little scientific language has been used and that little has been fully explained with a view to the use of the bulletin in Louisiana's schools. The informative matter is authentic and up to date. There are five colored inserts by Horsfall and two by Brooks—while every bird is pictured in small drawings by various artists—Audubon, Fuertes, Sawyer, Sim, Lodge, and others. It is indeed fortunate that Louisiana recognizes the value of her birds and has passed most rigid and sane laws for their protection, and is carrying on an educational campaign that other states might well emulate. Those interested in the birds of that section of our great United States will do well to send for a copy while they last—as we fully expect from the very comprehensive character of the book that the demand will be much greater than the supply. R. B. H.

Orchid Lovers

For the benefit of the orchid lovers among our readers may we record the receipt of Volume One, Number One of *The American Orchid Society Bulletin,* published by that society and issued from its headquarters, 115 Glenbrook Road, Bethesda, Maryland. The subscription price is one dollar a year for members of the society and is included in the annual dues. It will be issued quarterly and should receive a generous response.

Flower Show

From September 3 to 10, inclusive, what is expected to be the largest flower show ever held in America will be found in the Auditorium in Atlantic City. It will be the third National Atlantic City Flower and Garden Pageant. Inasmuch as the period covered by the show includes Labor Day, it is anticipated that the number of flower lovers who will attend will break last year's record of nearly 100,000.

Be a Grizzly

All young visitors to Yosemite National Park are now eligible to membership in the Yosemite Grizzlies. There are no dues in this new-fledged organization, the first of its kind in any of the National Parks. The Grizzlies have a clubhouse and take part in story hours, hikes, Nature-study walks, swimming and handicraft classes. Each young member is given a diary in which to record his or her day's activities.

Now You Tell One

Here is one for Ripley or Hix. According to the *California Ranger,* William Martin, an engineer, came upon a gopher and a snake engaged in a battle to the death. Suddenly a hawk swooped down upon the two combatants, carrying them aloft. They contacted a high tension wire and were electrocuted. The wires fell and started a fire in the Angeles National Forest.

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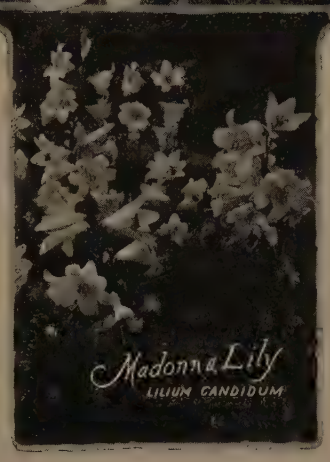

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DREER'S

Readers desiring copies of the American Nature Association Bulletins on How to Make a Lawn, The Weedless Lawn, The Peony Garden, Care of Your Garden Roses, Gardens Under Glass and Planting Your Bulbs should send to the Garden Editor requesting the bulletins by name and send a three cent stamp for each desired.

Blatchley's Latest Book

My Nature Nook, by the veteran naturalist, W. S. Blatchley, centers about his winter home in Dunedin, Florida, where in 1913 he purchased a tract of sand and sawpalmettoes and later built a home, which he has continued until the present to occupy as a winter residence. As the property, part of which was cleared and planted to a garden, while the rest remained a tangle, became a sanctuary for most forms of wild life, he had abundant opportunities to observe both resident and migrant in the enjoyment of his hospitality. On the leaning stem of a huge live-oak behind his house he built an observation seat, and there, in the intervals between other activities, he sat and wrote the notes that form the bulk of this book.

One of Blatchley's reasons for locating here was to have a place where he could commune freely with Nature. In this ambition he was only partially successful, for as the years went by the town grew out to him, and he pays his respects to the boom that forced him to purchase from the State several acres of bay in front of his property, in order to prevent it from being dredged and studded with islands.

Much of the book consists of transcripts from his diary, and thus records in some detail the clearing of a part of his lot, the erection of a house, and especially the observation on all the varied forms of life—plants, insects, mollusks, fishes, reptiles, birds, and mammals. Occasionally the finding of an arrowhead or other artifact, relic of an earlier occupation, is noted, or the prehistoric mounds of the aboriginal inhabitants form a subject for philosophic treatment. The book is thus filled with original observations on a great variety of subjects, including natural phenomena and a host of organisms, that are extremely valuable as records of the particular period covered. And as is the case with the boom he tells the truth about the weather, thus adding to his account a feature almost unique in the annals of Florida literature. The book is well indexed, and the hundreds of notes on distribution and habits are made readily accessible.

My Nature Nook is published by the Nature Publishing Co., 1558 Park Avenue, Indianapolis, Indiana, and sells for two dollars, net.—E. A. P.

Butterfly Wings

To write of butterflies, one should be able to sketch with a light, brilliant, gentle touch; colorfully, as the wings of the Brimstone; delicately, as the gossamer of the Luna. Such a writer is Friedrich Schnack, whose volume, *The Life of the Butterfly,* now translated into English, is one of the remarkable Nature books of the year. It is a beautifully executed study of the most important varieties of butterflies; its rich, colorful style reminds one of Maeterlinck and Beebe at their best; its wealth of information, cloaked so charmingly, makes it of particular interest to entomologists. One who has read the descriptions in this book will not easily forget the butterflies, both of the day and the night, for the moths also come in for their due of praise. Winifred Katzin is to be highly praised for her excellent translation. The book is published by Houghton Mifflin Company of Boston at $2.50.

NATURE IN PRINT

As a convenience to readers to whom book stores are not easily accessible the books reviewed in this department of Nature Magazine may be ordered through our own book department.

Heroes of Health

A truly educational service is being performed by the Metropolitan Life Insurance through its series of biographical pamphlets under the group title of Health Heroes. The booklets are distributed free to the number of five copies to each teacher in senior and junior high schools asking for them. The latest addition to the series comes in response to popular demand and is a biography of Robert Koch. It is the story of a great scientist who, as a boy, drew his greatest joy from studying the flora and fauna of his native Harz Mountains. Vouchsafed a university education when the family fortunes took an upward turn, young Koch naturally followed a scientific course, which developed into the study of medicine. From a country doctor he developed into a great research man, experimenting first with anthrax in which he made monumental discoveries about the habits of microbes. His work was crowned with the discovery of the bacillus of tuberculosis. It is a story of triumph and of unrelenting application to his work. Such booklets as this are of real value to our schools for supplemental reading.

Nature in Guiana

Major R. W. G. Hingston has already firmly established himself as a charming and significant writer on Nature, notably in the field of insects. To *A Naturalist in the Guiana Forest* he again gives of his ability to tell the story of the wild in most engaging fashion. The title of the book is sufficiently descriptive but perhaps not quite accurate. Entomologist might be substituted for naturalist, because, as might be expected, Major Hingston devotes the major portion of his book to the insect life of the jungle. And here is rich subject for treatment. The stories of the ants and spiders alone offer marvels enough, and once one is embarked upon reading of the infinite ingenuity of these little creatures it is difficult to stop. The ordered movements of the ants, marching in columns of squads with soldier guards outflung to protect the flanks; the conical web of one spider who lurks in a little cubby-hole with a hinged door at the base of the cone; the marvelous protective shapes and colors of many of the insect residents all make fascinating tales in themselves. Here is another book that the absolute layman can read and enjoy to the fullest, yet it is also of outstanding interest to the student of Nature. The publishers are Longmans Green and Company and the book is listed at five dollars.

Scott's "An Introduction to Geology"

If you are at all interested in the reasons for certain mountain chains, volcanoes, or rock and soil formations with which you are familiar, you cannot do better than to get the third edition of Professor W. B. Scott's "An Introduction to Geology," which for the past thirty years has held an important place among the books of most every geology student as well as in college and public libraries. My own copy, the revised edition of 1907, has been of constant value as a reference when geologic questions have arisen in general conversation or in reading.

For fifty years Professor Scott taught in Princeton University, and the present edition of this famous book may well be said to be the fruition of the years of endeavor to explain the enigmas of the earth to the fresh minds of growing youth in a manner brief, concise and, withal, interesting and comprehensive.

Professor Scott says that so great have been the strides in geologic knowledge within the past quarter of a century, particularly in regard to volcanic activity, and due to discoveries made in China, South America and elsewhere, that a complete revision and enlargement was deemed necessary, so the book is now in the form of two volumes.

The first volume treats of the formation of the earth, describes its present state; explains the processes of rock construction; deals with the mineral constituents of rocks, the effects of vulcanism, sedimentary deposition, erosion by water, winds and temperature; includes the history of the much talked of Glacial Periods; and the building of mountain ranges with the consequent bending and folding of the masses of rock.

Volume two treats of the earth's history as told by the fossils contained in the various layers of rock—a fossil being the impression or remains of an animal or plant preserved in the rocks. The truths of evolution are clarified in a very conclusive manner and life histories are traced to and including ancient man.

Published by Macmillan, Volume I sells for $3.50, Volume II for $3.00. Take them with you on your vacation.—R. B. H.

Pollwiggle

Wilfrid S. Bronson has written another entertaining Nature book for children, this time under the title *Pollwiggle's Progress.* He has also illustrated the book in amusing and instructive fashion. As may be gathered from the title, the story deals with the life of the frog and into the narrative is woven that ever-interesting story of the development of this citizen of the wet spots. The book is published by The Macmillan Company and is listed at two dollars.

Poems for Tree-Lovers

As fresh, lively and interesting as a March day is *How Pan Shaped the Leaves and Other Poems,* by Colonel Paul Southworth Bliss of St. Louis, Missouri. The little volume contains many verses comprising apt and striking pictures of common trees as well as a number of poems on a wide variety of subjects. It is priced at $1 by the author who is distributing it from 2221 Locust Street.

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My Favorite Bear Story

By G. C. Ruhle, Park Naturalist, Glacier National Park

Our American populace has been raised on bears. Sister used to put her dollies to bed on either side of a teddy bear, and thought it no more incongruous than to snuggle the cat in bed with her in the morning. We have come to associate human attributes with bears such as with no other animals.

Of all of the animals in our National Parks, none has crashed its way into the hearts of the visitors as much as the bear. They are trusting and amiable, the roly-poly clowns of our forests, the beggars at our door steps, the hold-up men of our passing automobiles, a nuisance around our garbage pails at night, eternally hungry, always looking for something sweet, smashing into our larder to steal coveted ham and bacon, opening up cans as cleverly as the finest can opener ever devised by man.

In one of our national parks there lived a well-beloved mother bear. So far as her own person was concerned she explicitly trusted everyone who came her way, but she set a different standard of behavior of her three little cubs towards human beings. Them she kept at a respectable distance of ten or more yards from any human beings who ventured to give her food. A beautiful sight it was, this well-groomed dark brown mother with her three chubby young ones. Every visitor to the park was drawn to the place where she hung out.

It happened one day that a lady visitor entered the park. "Where is this companionable mother bear with her three cubs about whom everyone is talking?" she inquired of the checking ranger who greeted her entrance into the park. Upon being told, she inquired, "What does she like to eat?" Perhaps "What doesn't she like to eat?" might have been more easily answered, for bears in this, as in many another respect, are just like little boys—they are omnivorous.

Upon learning that bears are very fond of candy, she went immediately to the nearest curio shop and bought a box of Whitman Chocolates. Thus "loaded for bear", she repaired to the site, where the bear sallied forth. The lady chose what looked to her to be the most delectable chocolate, left her car, and moved over to the animals. Of course, Mother Bear knew just what it was all about: she had been approached in that fashion before; and so unabashed she moved forward to claim what she thought was her own. But as she spread her gaping red mouth, dripping with the prospect of that chocolate, and showed her formidable, gleaming teeth, the lady was not quite so sure that she wanted to feed it out of her bare hand. Well, I ask you, just what would little Johnny do if you held out a chocolate to him, and you jerked away the morsel just as he was about grasp it? Well, the bear did just that. As a heavy paw reached forward to stay the withdrawal of the tidbit, the lady drew back in fright. The paw came down with a thud, but catching a claw in her dress. The bear with the dress went in one direction; the lady, without dress, in the other. And to this day, I have not quite decided to my complete satisfaction which of the two was more frightened.

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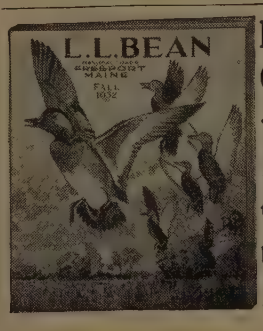

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A CLIFF DWELLER RETURNS

By Don Watson

Reprinted from Mesa Verde Notes of Mesa Verde National Park

Seven centuries have passed since the Cliff Dweller left his Mesa Verde home, and any possibility of his returning has never been considered. But this spring the impossible has happened; one of the old Cliff Dwellers has returned and is making his home in Cliff Palace, where he may be seen at any time. There on the upper ledge he sits, dreaming of the glory of bygone days.

"Why that is only an owl!" the unlearned observer will say, but not so the Navajos. Through centuries of close association with Nature they have grown wise in her ways, and are able to read strange meanings in seemingly commonplace things that escape the ordinary individual. To the Navajo the owl is not a bird at all, but the spirit of some dead person, returned to its former home. And to prove this they point out the fact that the owl is active only at night, when none but the spirits should be about.

So the great owl in Cliff Palace, they insist, is the spirit of an old Cliff Dweller that has returned to the haunts its mortal body once knew. All day long it sits there in the midst of the crumbling walls, dreaming of those glorious days of long ago. Once again Cliff Palace is a teeming city of many hundreds of happy people. Once again the walls take on their former shapes. The cooking fires send up their wreaths of smoke; the patient squaws resume their household tasks. Once more the same ageless cliffs echo to the joyous laughter of playing children, and to the singing of the girls as they work in the grinding rooms.

When twilight comes the old fellow sails forth on silent wings; up over the trails he once so laboriously climbed, out over the little cornfield he once so patiently tilled, over the mesa top where he hunted, and down to the spring where once he planted his prayer-sticks to the Great Water God. Then a sweet memory and he soars to the cliff-top and alights in the sheltered nook, where long ago, under the same ageless moon, he wooed and won a dusky maiden.

As the moon drops behind the mesa-top, and the white light of dawn streaks the eastern sky, he slips back into the crumbling ruin, to brood silently through another day.

Only an owl? Who is to question these children of the wilds, whose centuries of close communion with Mother Nature has given them an insight into her mysterious ways that shall never be the white man's privilege.

Wildings at Home

The interest which has developed recently in wild flower gardens has inspired Frank Pellett to write a valuable and informative book on wild flower cultivation. Its title is *Flowers of the Wild, Their Culture and Requirements.* Profusely illustrated with excellent pictures, it reveals the possibilities of developing attractive floral displays by the sole use of woodland natives, and passes on the information on care and treatment so necessary in dealing with these shy plants. The volume is published by A. T. De LaMare Co. at $2.00.

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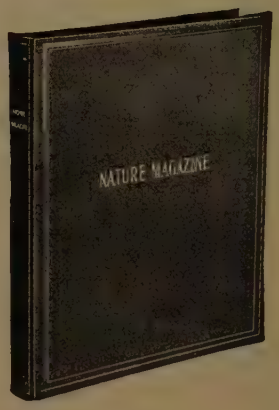

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The Friendly Waxwing

The cedar waxwing appears to be warming to human society. In a recent issue we told about one of these birds lighting on the fishing rod of a Waltonian. Now Mrs. T. P. Thompson of Norfolk, Virginia, tells about a waxwing that boarded a coastwise steamer on which she was a passenger, and flew directly to her lap, where it rested and ate. A pair of birds flew on board as the vessel was passing the New Jersey shore and traveled up and down the boat. One of them rested for a moment on the outer rail, then quite without invitation, went directly to Mrs. Thompson. It seemed very tired, and sat quite still on her lap, closing its eyes. It was not to be tempted by a cracker, but, hastily gobbled every fly that was captured for it, then drank water out of the cupped hands of another passenger. Mr. Thompson persuaded the bird to perch on a pencil while he carried it on an exhibition tour of the boat. It seemed to recover from its weariness, and flew about, coming back, however, to Mrs. Thompson's shoulder. Once, a little later, it started out to sea, but soon returned. Mrs. Thompson called it, and it flew again to her shoulder. At last it struck out for land. Both the waxwings were young birds.

Starlings Again

Even if starlings are innocent of crime in Huntington, New York, as A. H. Hellmer claimed them to be in the March issue (page 139), they are ubiquitous pests in Canaan, Connecticut, according to C. H. Pease of that bustling community. He claims that the starlings molest other birds, particularly bluebirds, whom they drive from the nesting boxes, and flickers, whose homes they occupy. There is no reason to believe that grackles are the real offenders and starlings merely mistaken for them, in his opinion, for starlings and grackles have many points of difference. Mr. Pease also takes exception to Mr. Hellmer's statement that starlings "will not come near human habitations except in severe winter weather", and cites his experience to be that they are nuisances at all periods of the year except during that time.

Museum Celebrates Centennial

The Museum Heineanun in Halberstadt, Germany, the largest private ornithological collection in Europe, celebrated its hundredth year in 1931, and ornithologists the world over paid their respects to Ferdinand Heine, one of the most famous bird-collectors of his day. Heine started his collection of bird skins in 1830, and established his museum the next year. The collection now includes 13,700 specimens, among them 440 of the 500 species of humming birds in existence. Of particular interest are the 399 "types", the specimens especially cited by the authors when describing new species. The museum is open to the public. Halberstadt is located in the midst of the Hartz Mountains, in one of the most picturesque sections of Germany.

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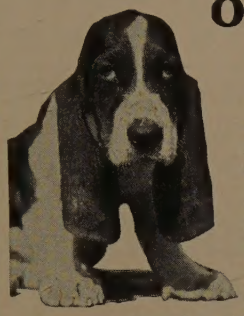

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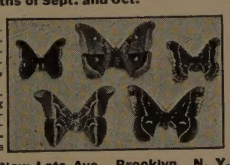

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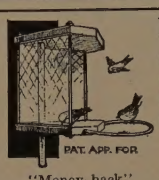

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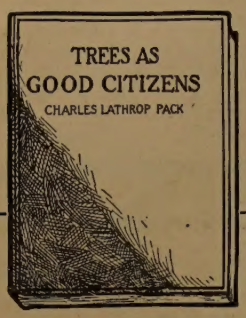

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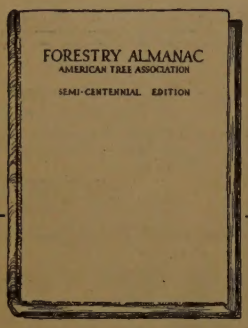

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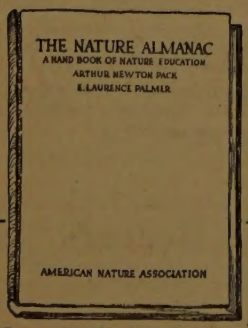

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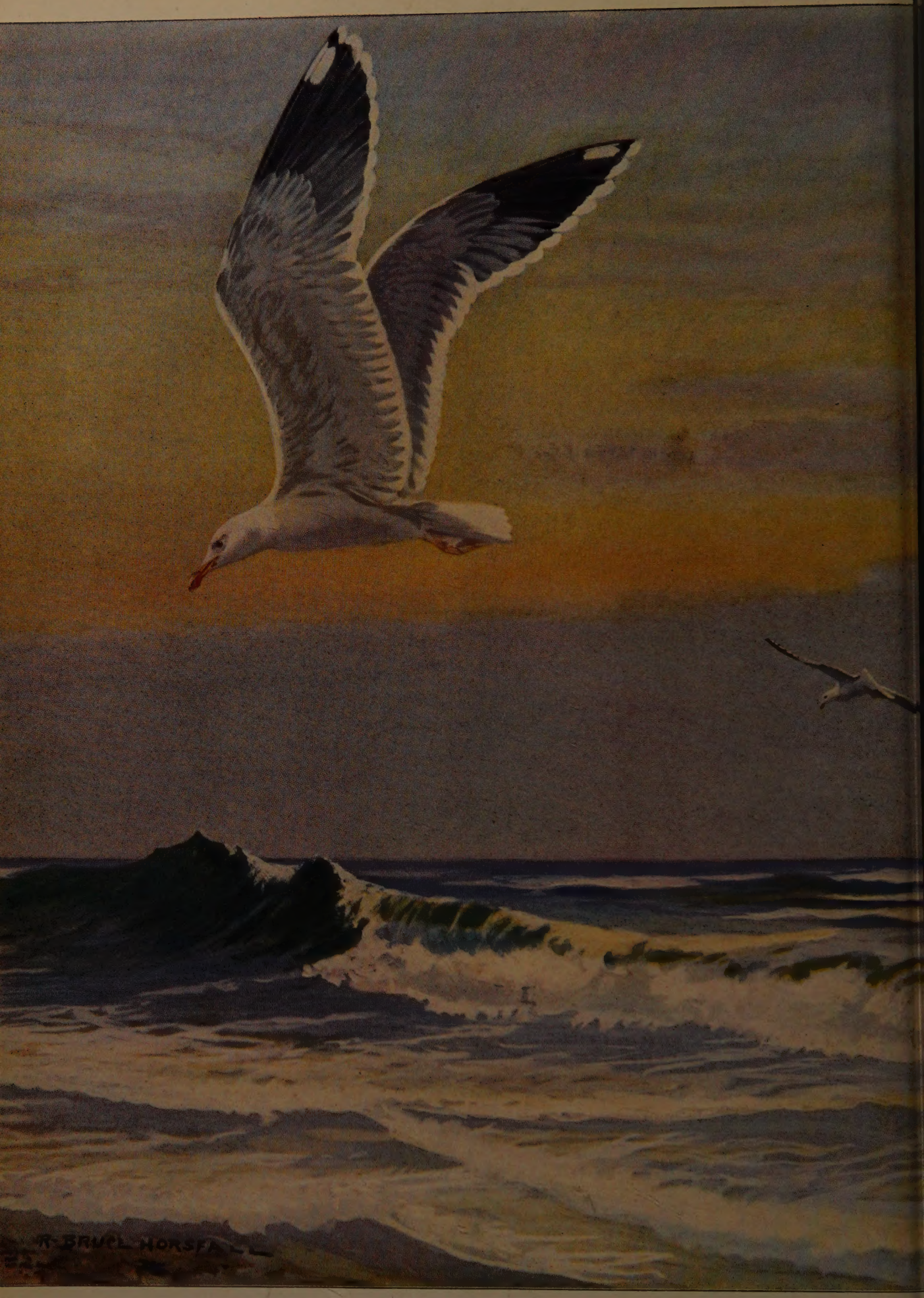

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